

Upper Colorado River and Petronila Creek Dissolved Solids Impairments TMDL



**Texas Commission on Environmental Quality, EA Engineering, Science & Technology Inc.,
and The Louis Berger Group**



Project Segments

- Segment 1214 - San Gabriel River
- Segment 1244 - Brushy Creek
- Segment 1426 - Colorado River below
E.V. Spence Reservoir
- Segment 2204 - Petronila Creek

Segment 1214 - San Gabriel River Overview

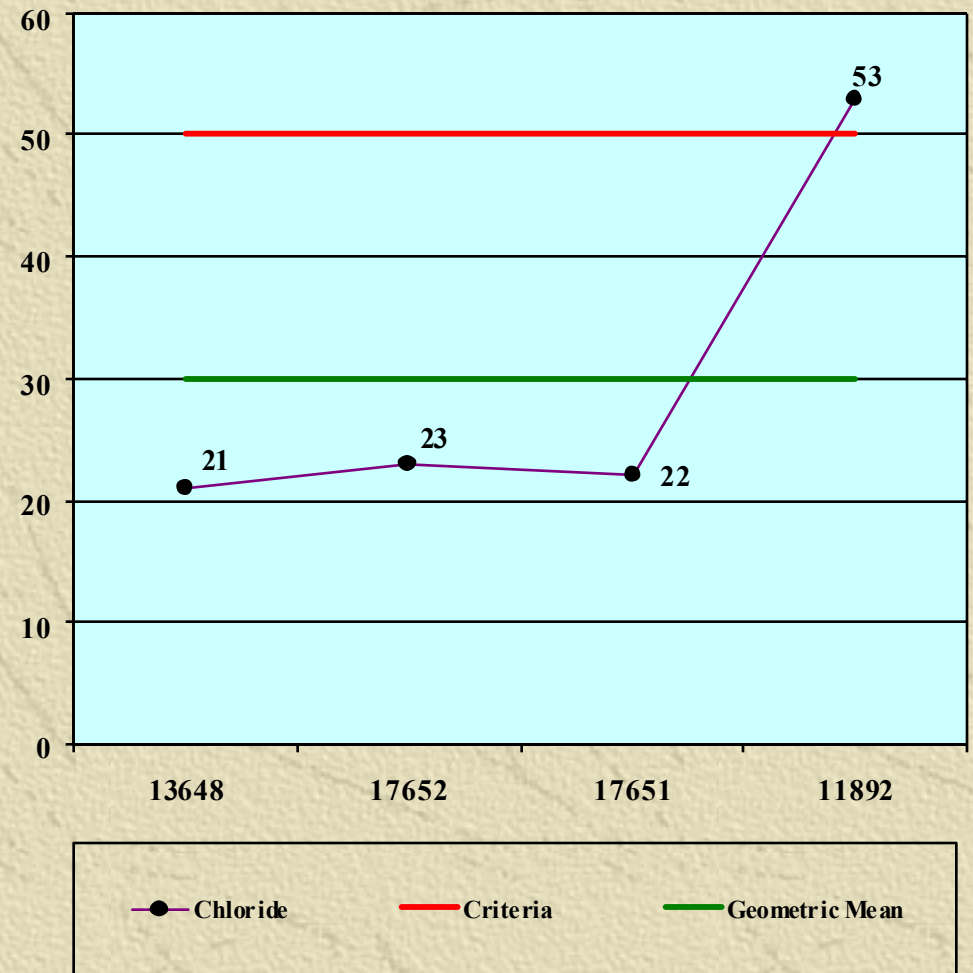
- ✧ Placed on the 2000 Clean Water Act (CWA) §303(d) list because **chloride exceeded** the segment specific criteria of **50 mg/L**.
- ✧ Designated Uses
 - ✦ Aquatic Life
 - ✦ Contact Recreation
 - ✦ General Use
 - ✦ Fish Consumption
 - ✦ Public Water Supply
- ✧ **Delisted** – based on data, the average concentration of chloride is below the criteria.

Project Sample Results

Segment 1214 – San Gabriel River

- ✚ **Station ID 13648** - San Gabriel River at CR 0.2 Miles North of Laneport, 7.5 Miles NW of Thrall
- ✚ **Station ID 17652** - San Gabriel River 0.5 Miles South of San Gabriel Town on FM 486
- ✚ **Station ID 17651** - San Gabriel River at CR 429 South of FM 487
- ✚ **Station ID 11892** – San Gabriel River at FM 487 NW of Rockdale

Sample results confirm delisting










Segment 1244 – Brushy Creek Overview

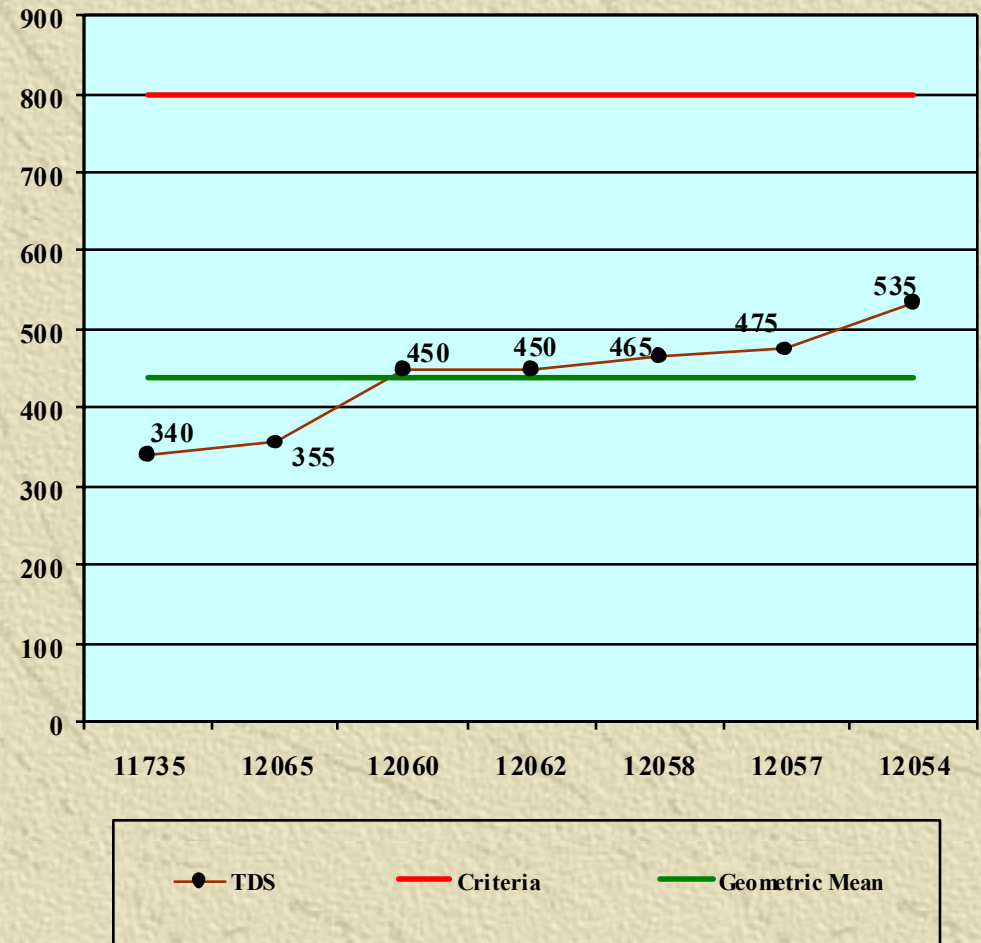
- ✦ Placed on the 2000 Clean Water Act (CWA) §303(d) list because **total dissolved solids** (TDS) **exceeded** the segment specific criteria of **800 mg/L**.
- ✦ Designated Uses
 - ✦ Aquatic Life
 - ✦ Contact Recreation
 - ✦ General Use
 - ✦ Fish Consumption
 - ✦ Public Water Supply
- ✦ **Delisted** – based on data, the average concentration of total dissolved solids is below the criteria.

Project Sample Results

Segment 1244 – Brushy Creek

-  **Station ID 11735** – South Brushy Creek at CR 174.
-  **Station ID 12065** – Brushy 150 meters upstream of Lake Creek
-  **Station ID 12060** – Brushy Creek at FM 685
-  **Station ID 12062** – Brushy Creek at CR 122
-  **Station ID 12058** – Brushy Creek at SH 95
-  **Station ID 12057** – Brushy Creek at FM112
-  **Station ID 12054** – Brushy Creek at FM 908 Northwest of Rockdale

Sample results confirm delisting



Segment 1426 – Colorado River below E.V. Spence Reservoir Overview

✚ Placed on the 2000 Clean Water Act (CWA) §303(d) list because total dissolved solids (TDS) exceeded the segment specific criteria of 2000 mg/L.

✚ Designated Uses

- ✚ Aquatic Life
- ✚ Contact Recreation
- ✚ Fish Consumption
- ✚ Public Water Supply

Segment 1426 Colorado River below E.V. Spence Reservoir—Geography

Is located within the Colorado River Basin, from a point 2.3 miles below the confluence of Mustang Creek to Runnels County to Robert Lee Dam in Coke County. It has a total length of 66 miles.

Winds through an area largely developed by agricultural production. The primary employers are oil and gas extraction, light manufacturing, retail trade, and food services.









In fiscal year '03 the Non-point Source Program (NPS) initiated another contract with the Railroad Commission of Texas (RRC) to eliminate a potential source of salinity in the Upper Colorado River drainage basin through the plugging of abandoned, non-compliant oil and gas wells and the re-plugging of improperly plugged wells. A total of 115 wells will be plugged in Runnels County area.

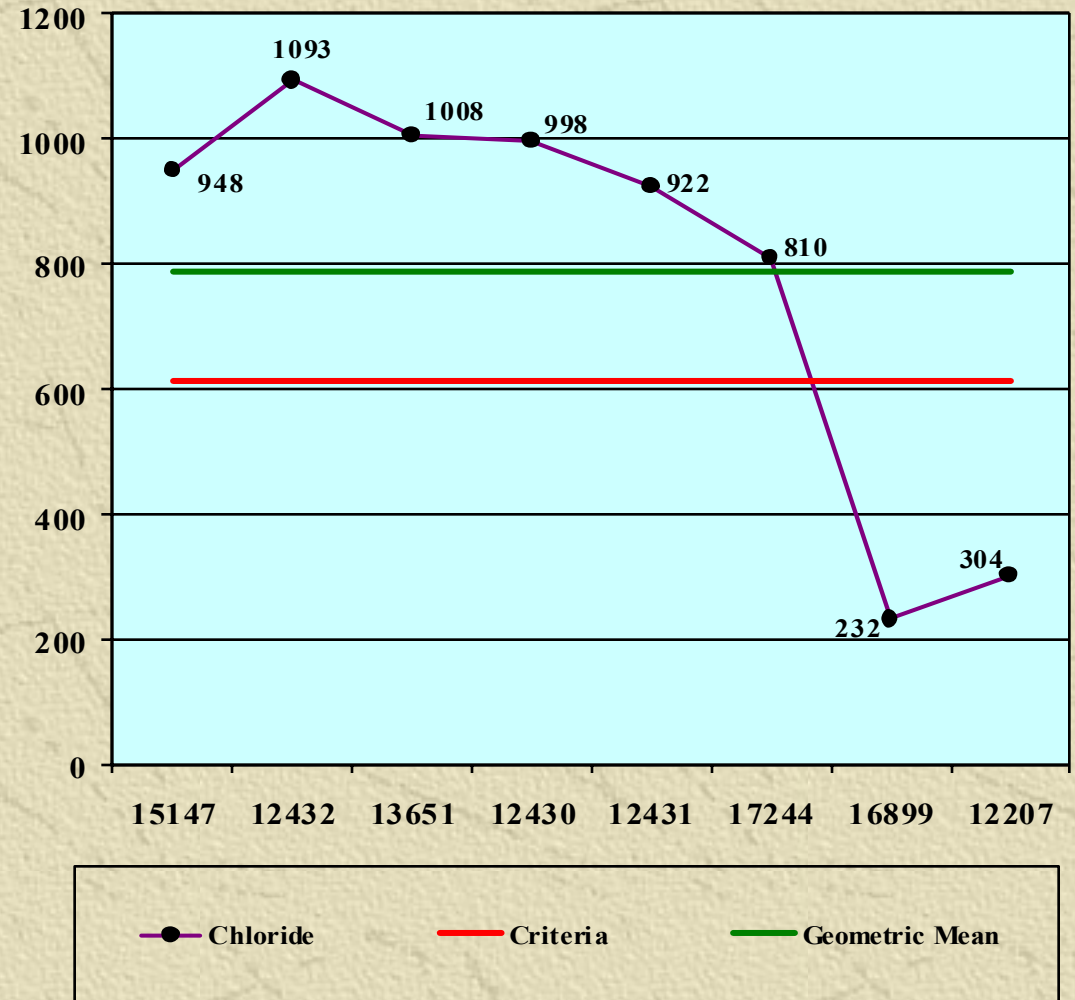
(A previous contract between the NPS Program and the RRC (9/1/99 – 2/28/03) plugged 197 wells in seven (7) counties in the Upper Colorado River drainage basin: Coke, Sterling, Nolan, Mitchell, Scurry, Howard, and Borden counties.)



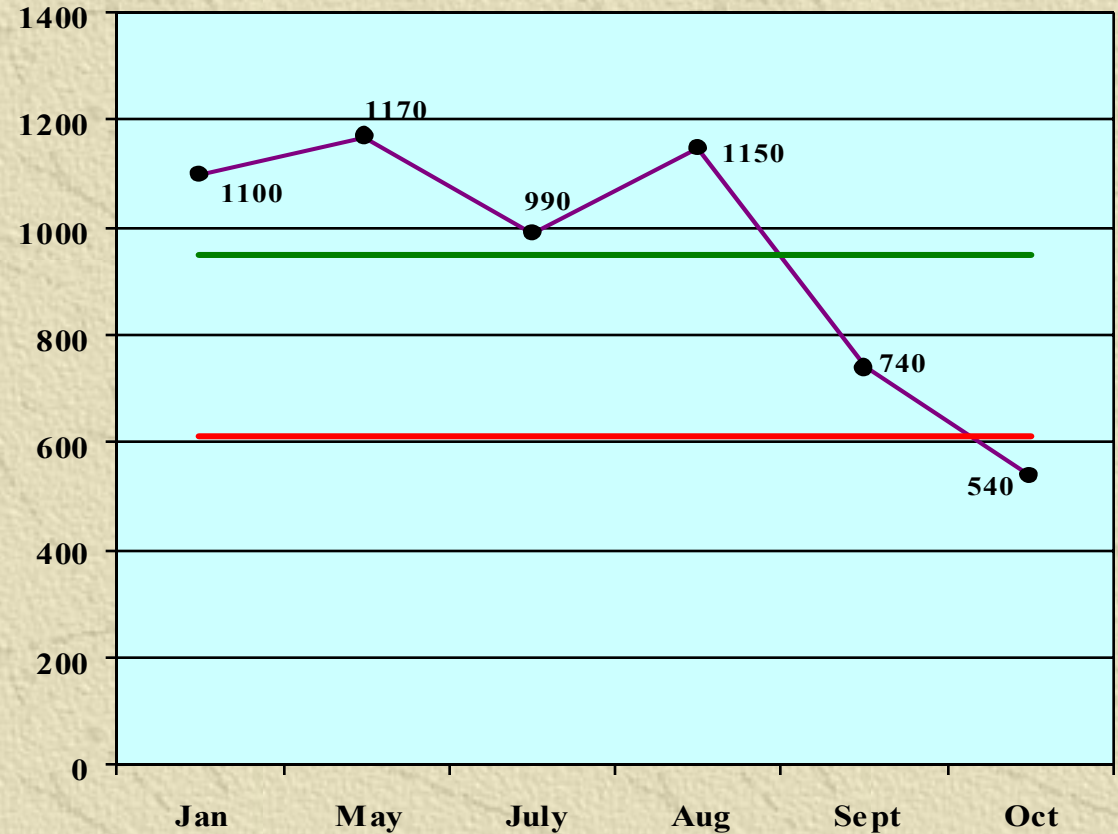
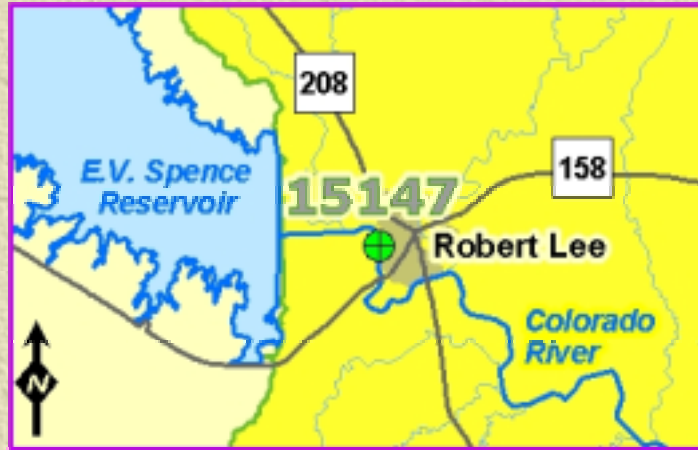
Chloride - Project Sample Results

Segment 1426 – Colorado River below E.V. Spence Reservoir

-  **Station ID 15147** – Colorado River near Robert Lee WWTP
-  **Station ID 12432** – Colorado River at US 277 south of Bronte
-  **Station ID 13651** – Colorado River near Ballinger
-  **Station ID 12430** – Colorado River bridge on US 83 in Ballinger
-  **Station ID 12431** – Colorado River bridge on US 67
-  **Station ID 17244** – Colorado River at Blair Ranch
-  **Station ID 16899** – Coyote Creek at CR 342
-  **Station ID 12207** – Elm Creek at CR 330 four miles north of Ballinger

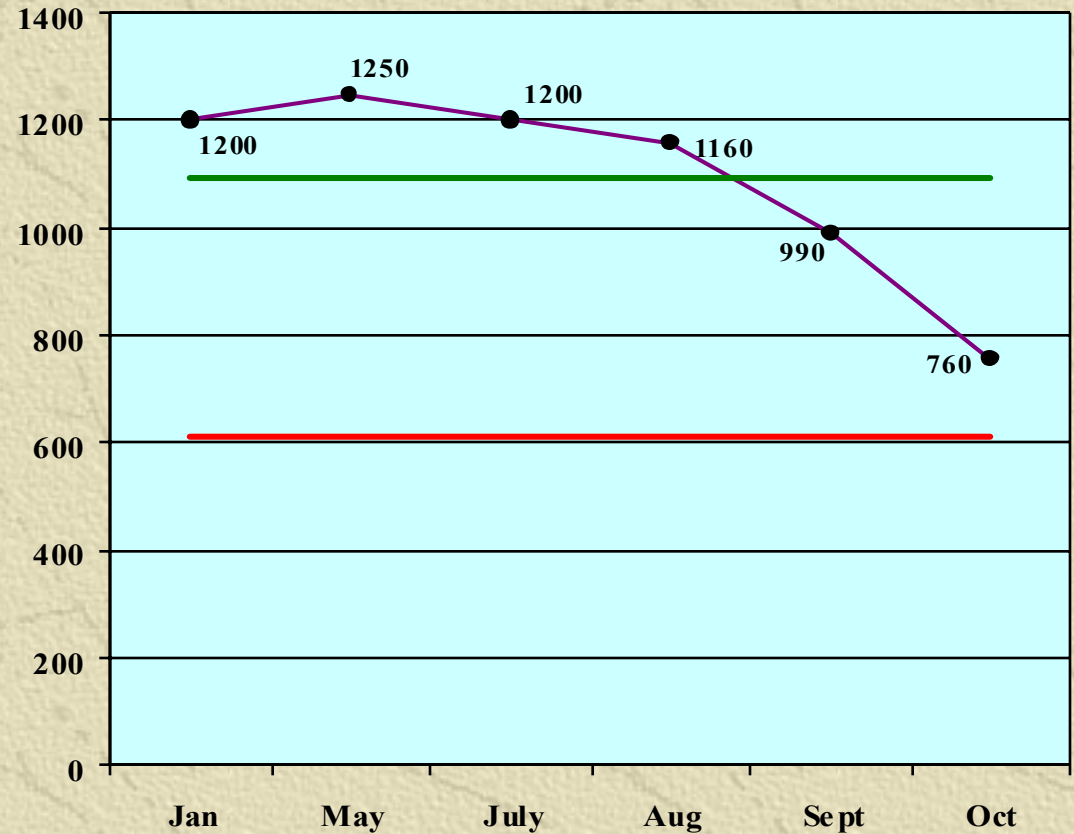


Station ID 15147 Colorado River near Robert Lee WWTP



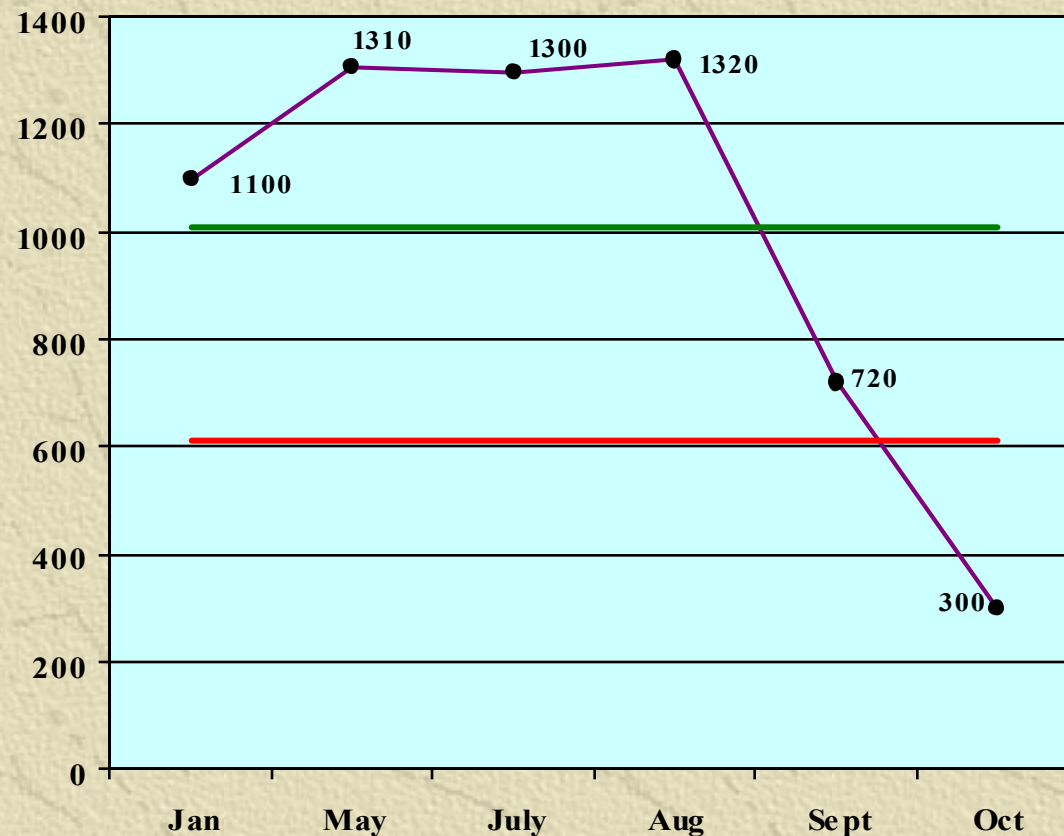
● Chloride — Criteria — Geometric Mean

Station ID 12432 Colorado River at US 277 South of Bronte



● Chloride — Criteria — Geometric Mean

Station ID 13651 Colorado River near Ballinger

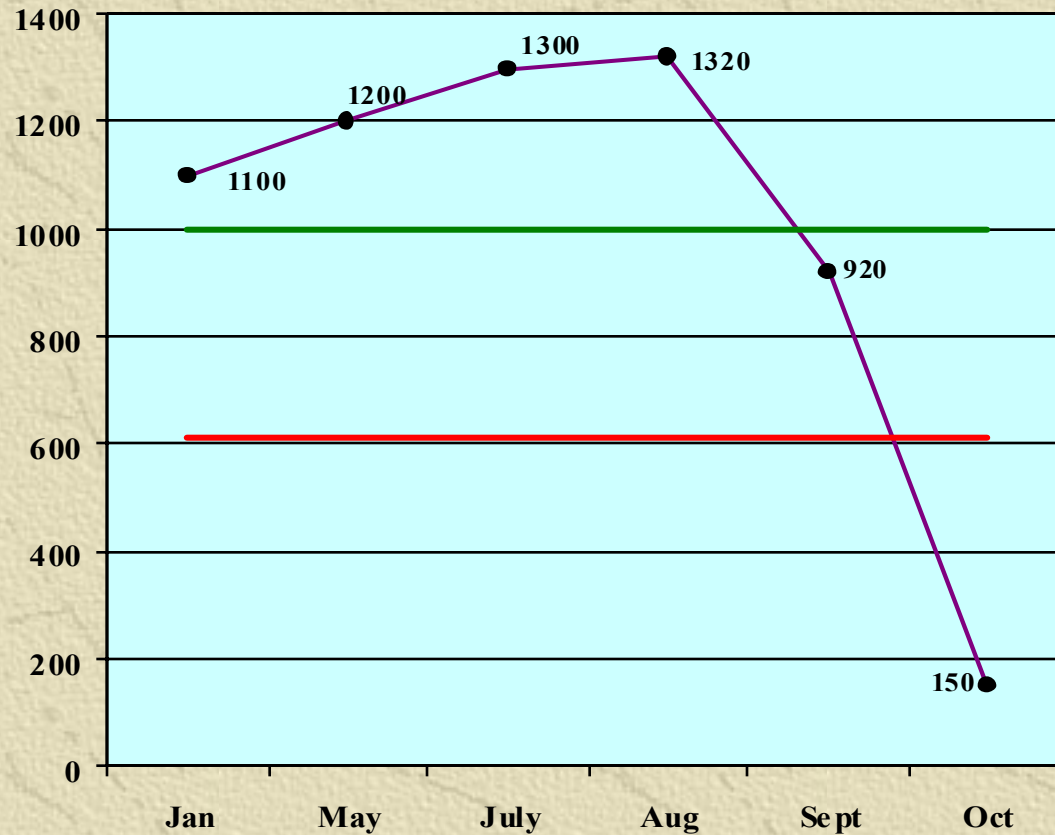


● Chloride

— Criteria

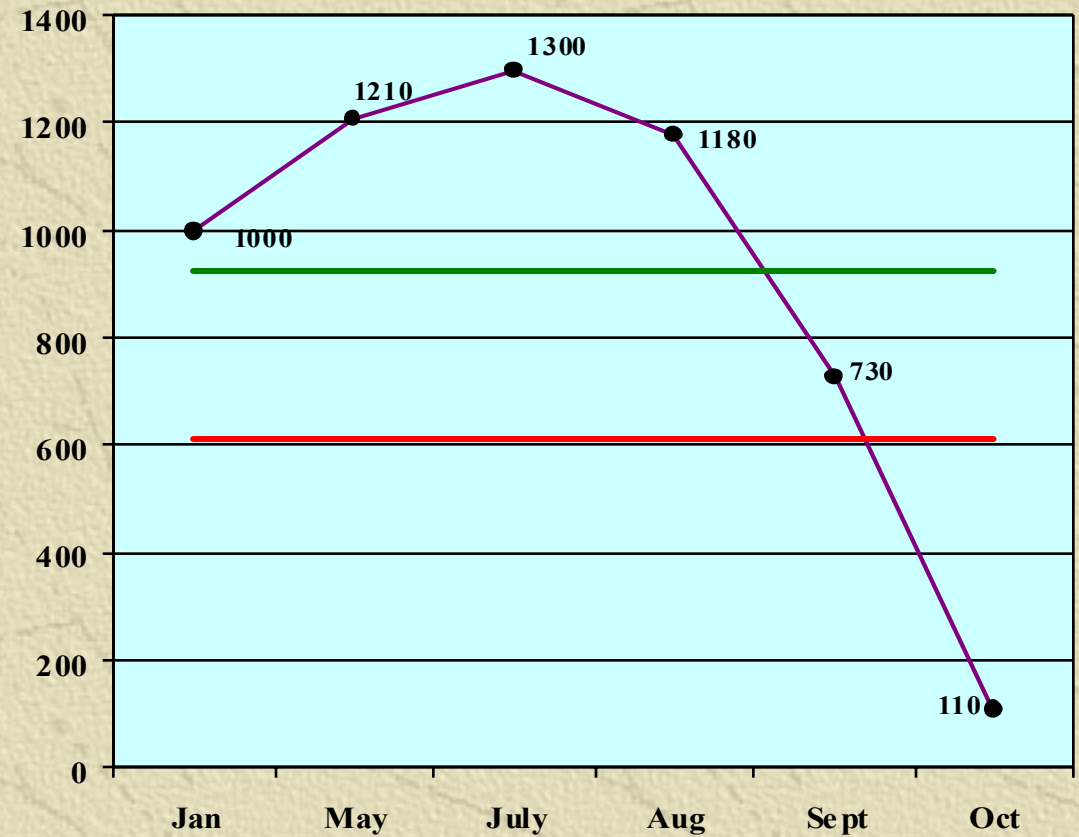
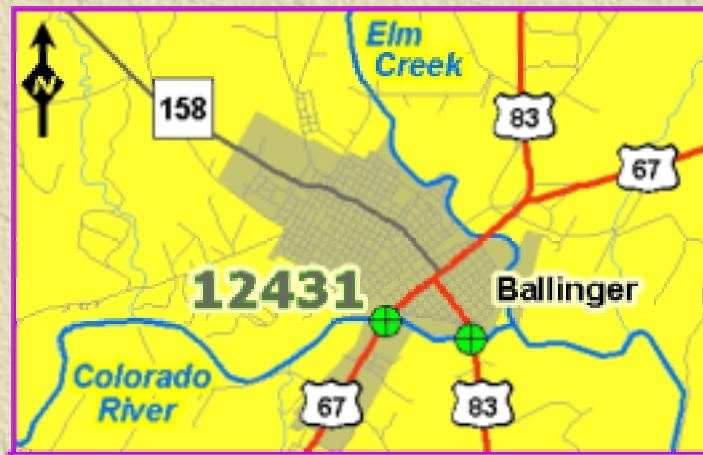
— Geometric Mean

Station ID 12430 Colorado River bridge on US 83 in Ballinger



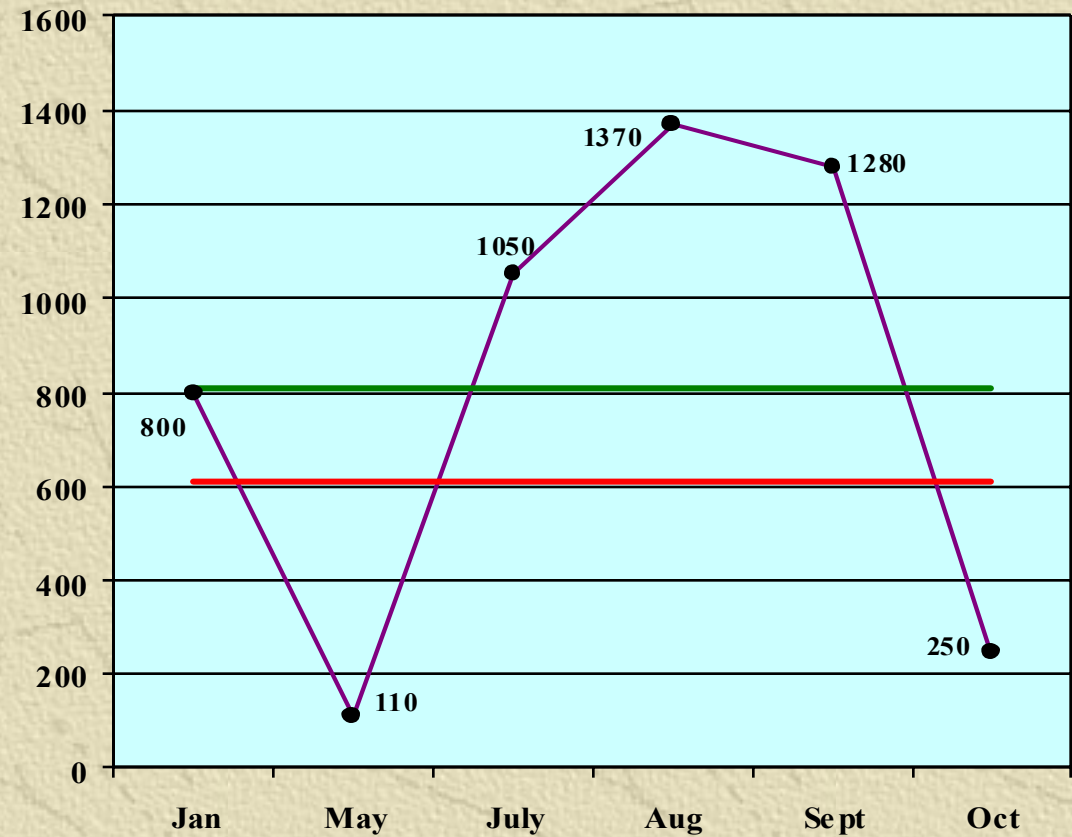
● Chloride — Criteria — Geometric Mean

Station ID 12431 Colorado River bridge on US 67



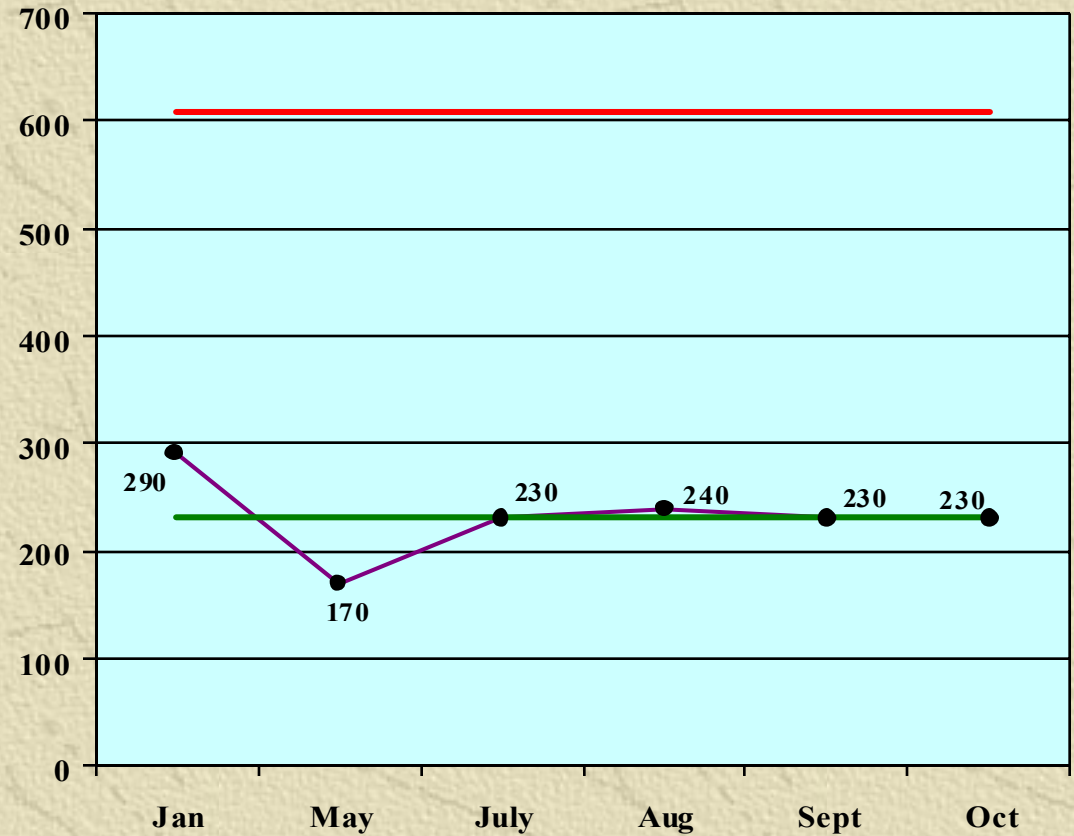
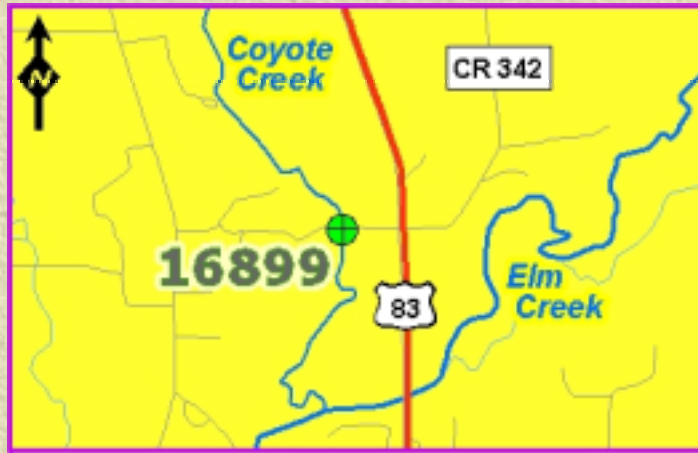
● Chloride — Criteria — Geometric Mean

Station ID 17244 Colorado River at Blair Ranch



● Chloride — Criteria — Geometric Mean

Station ID 16899 Coyote Creek at CR 342

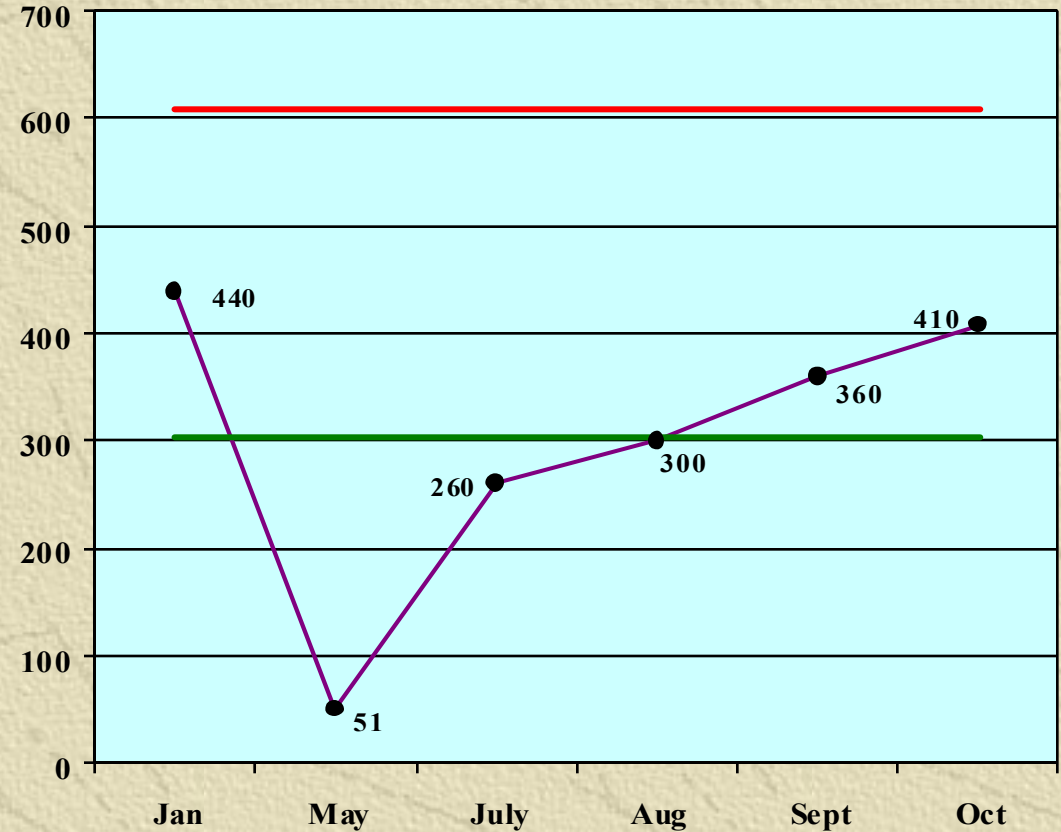
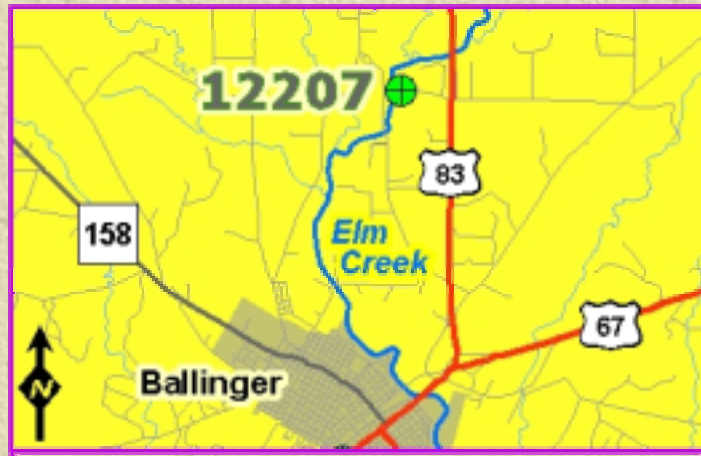


● Chloride

— Criteria

— Geometric Mean

Station ID 12207 Elm Creek at CR 330 four miles north of Ballinger











● Chloride

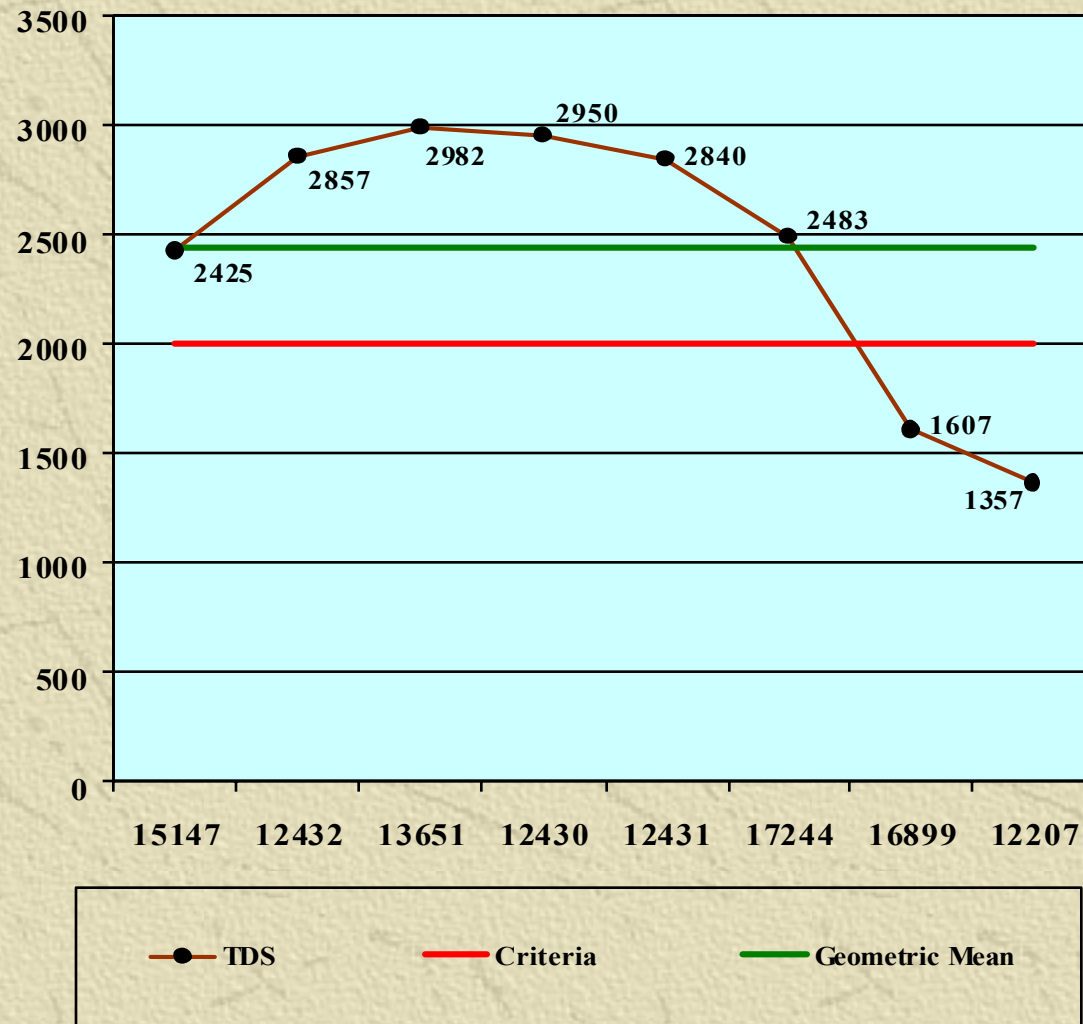
— Criteria

— Geometric Mean

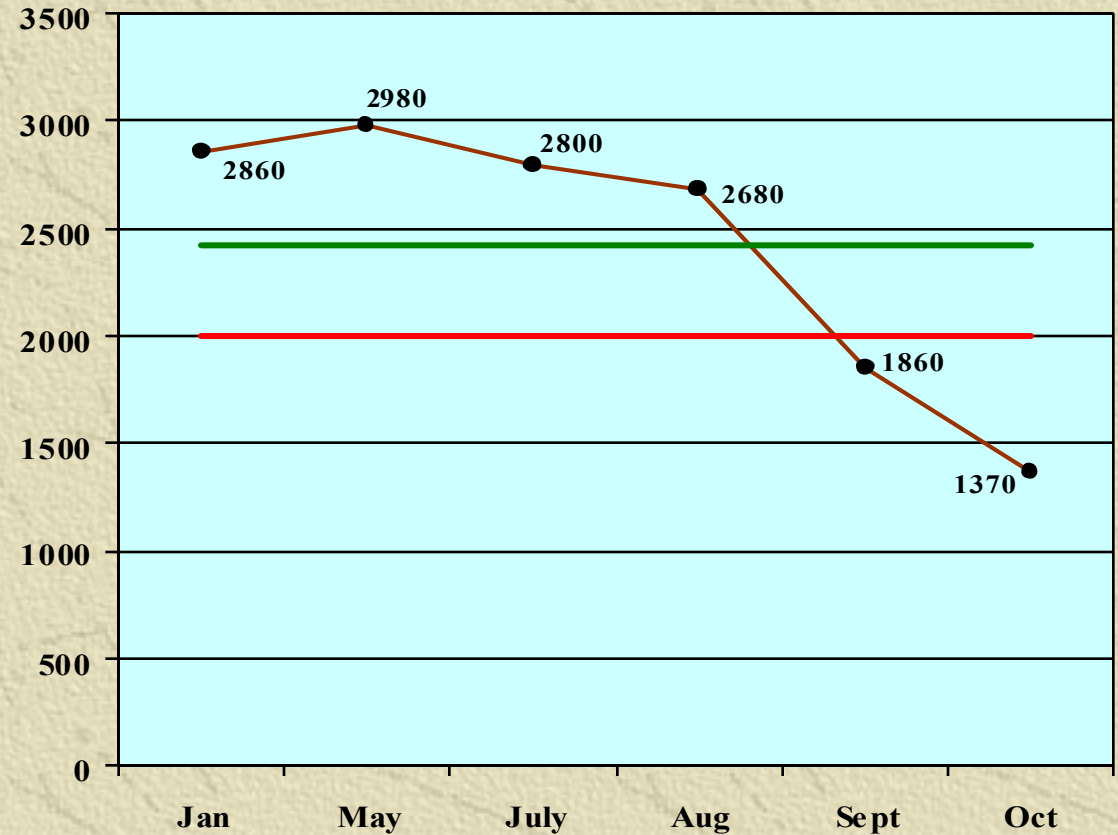
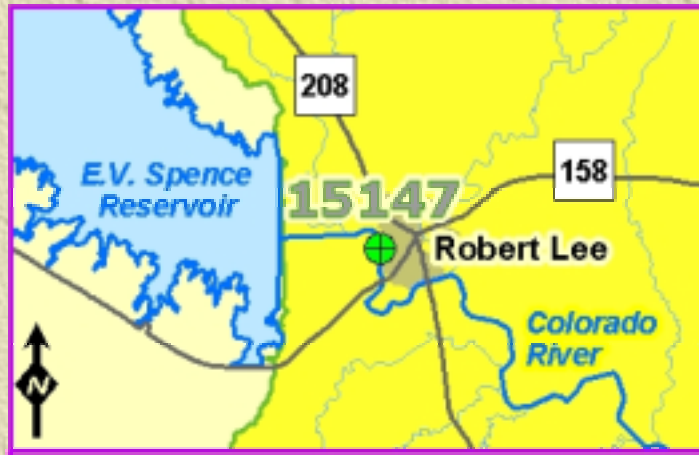
TDS - Project Sample Results

Segment 1426 – Colorado River below E.V. Spence Reservoir

-  **Station ID 15147** – Colorado River near Robert Lee WWTP
-  **Station ID 12432** – Colorado River at US 277 south of Bronte
-  **Station ID 13651** – Colorado River near Ballinger
-  **Station ID 12430** – Colorado River bridge on US 83 in Ballinger
-  **Station ID 12431** – Colorado River bridge on US 67
-  **Station ID 17244** – Colorado River at Blair Ranch
-  **Station ID 16899** – Coyote Creek at CR 342
-  **Station ID 12207** – Elk Creek at CR 330 four miles north of Ballinger



Station ID 15147 Colorado River near Robert Lee WWTP

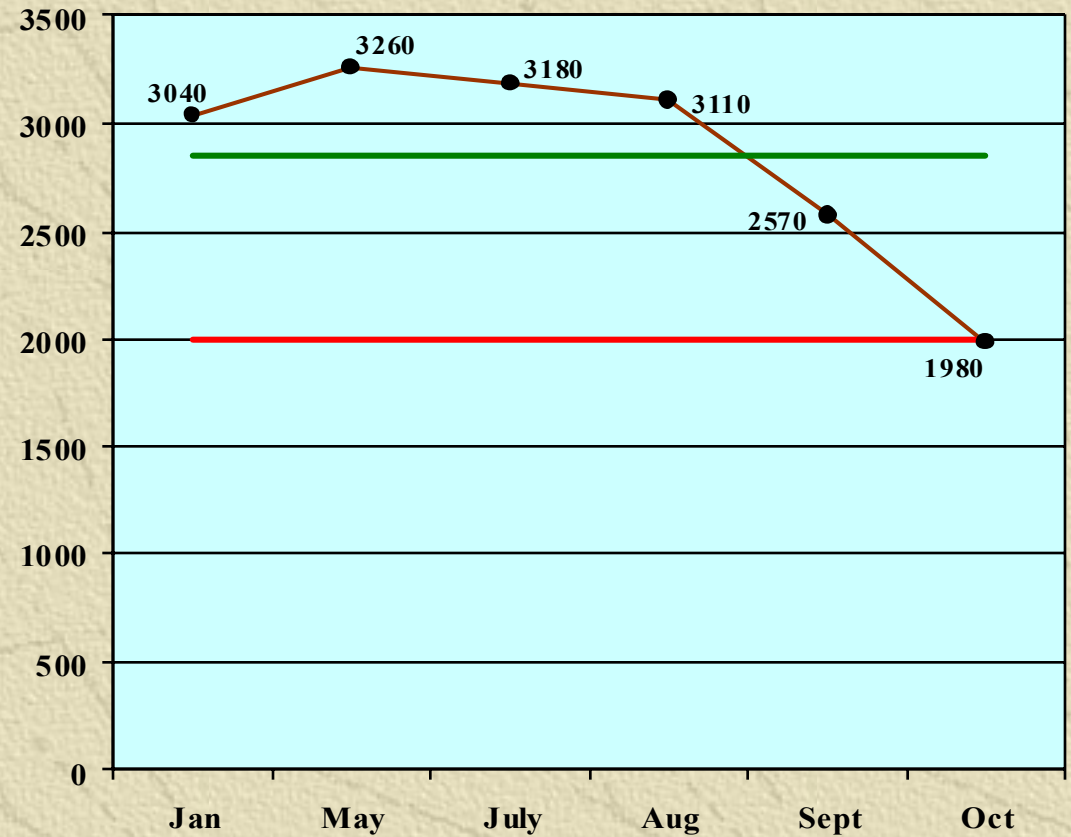


● TDS

— Criteria

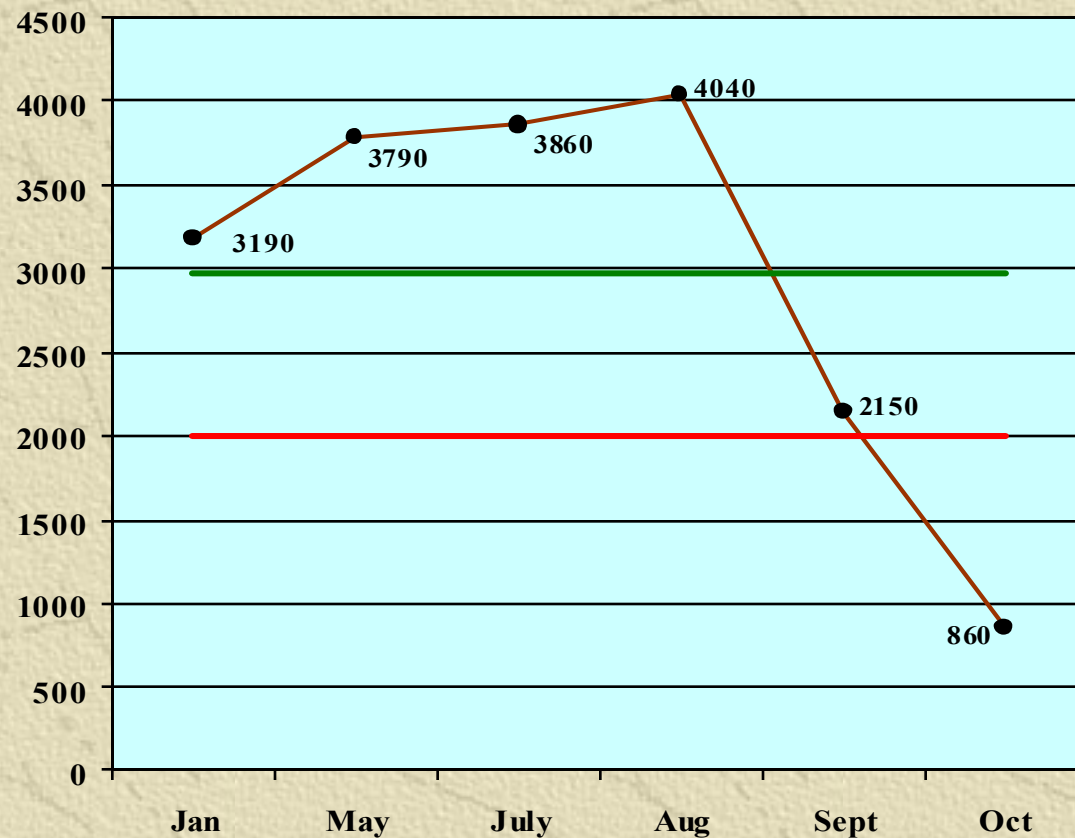
— Geometric Mean

Station ID 12432 Colorado River at US 277 South of Bronte



● TDS — Criteria — Geometric Mean

Station ID 13651 Colorado River near Ballinger

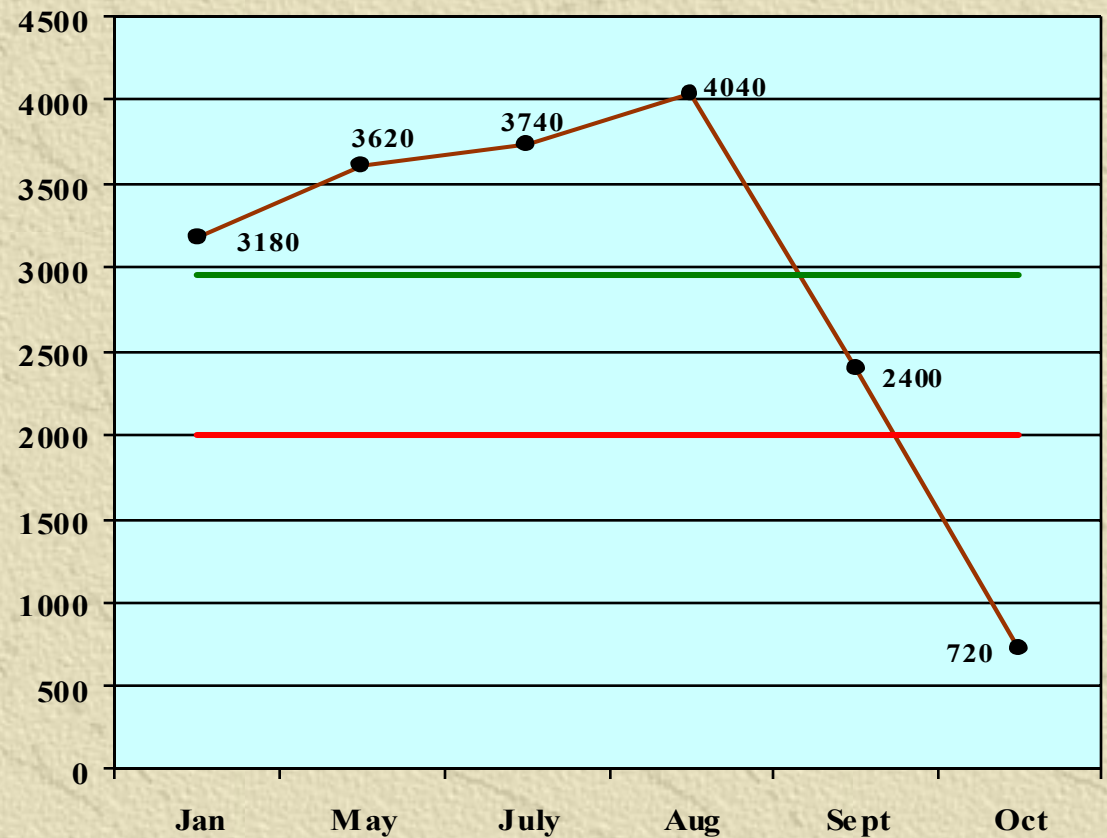


● TDS

— Criteria

— Geometric Mean

Station ID 12430 Colorado River bridge on US 83 in Ballinger

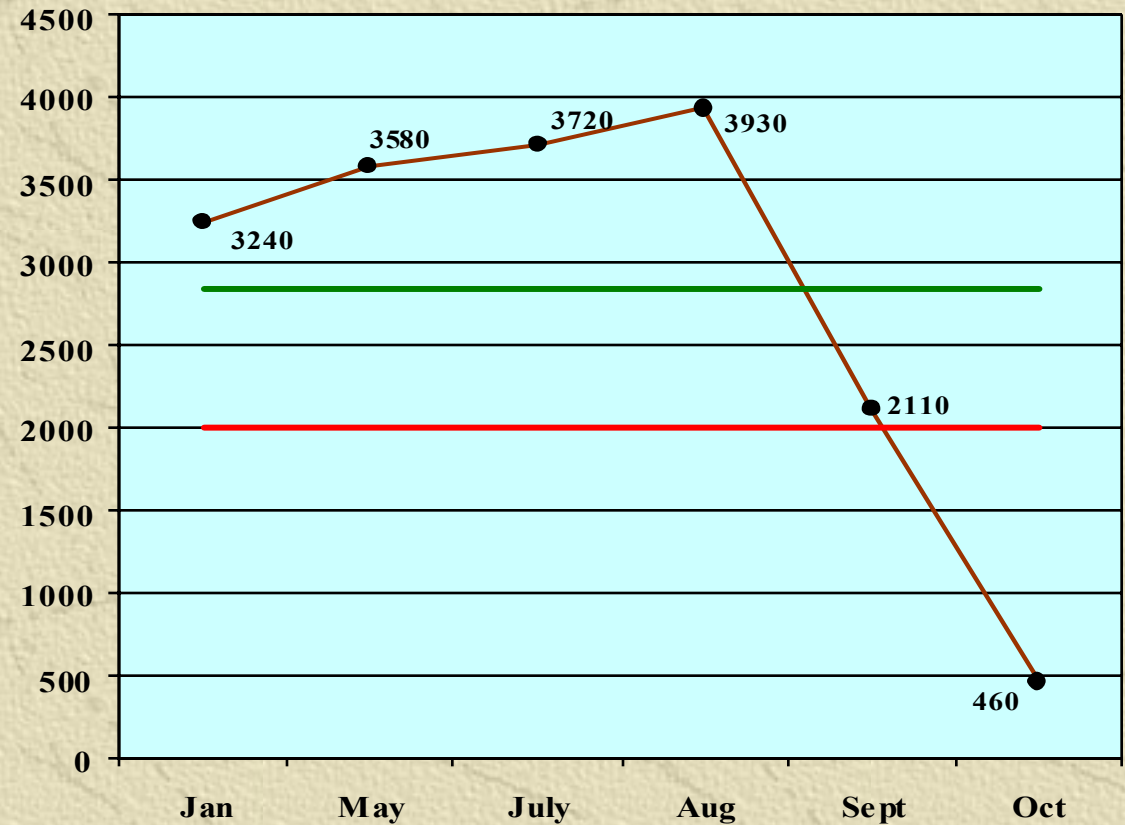
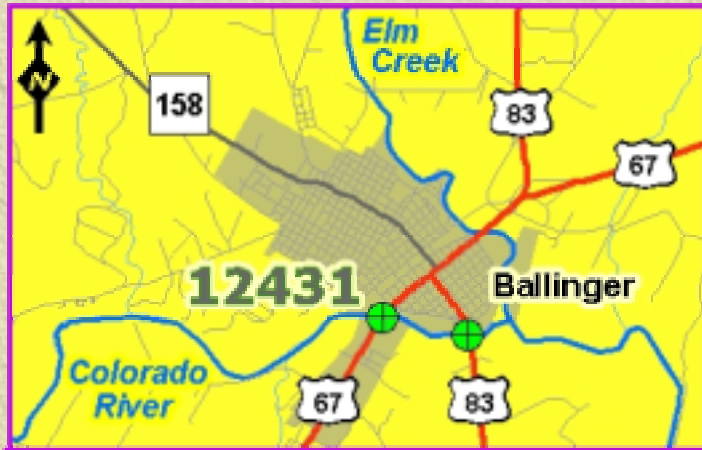


● TDS

— Criteria

— Geometric Mean

Station ID 12431 Colorado River bridge on US 67

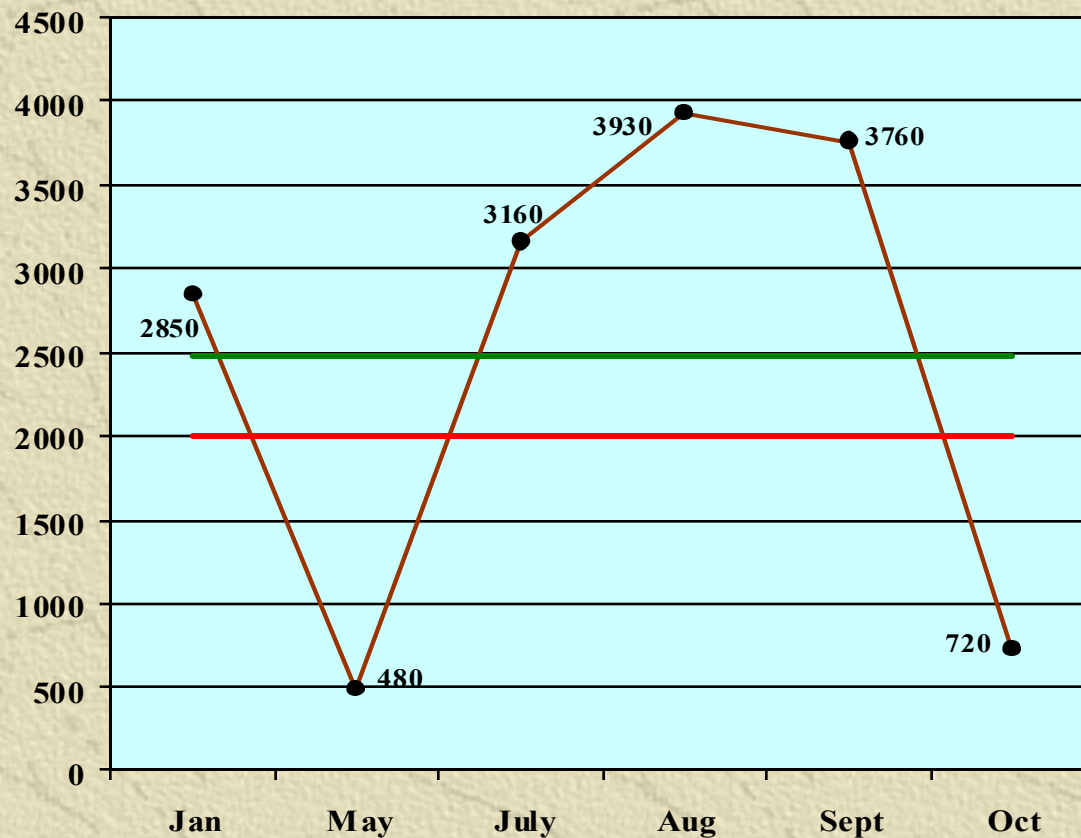
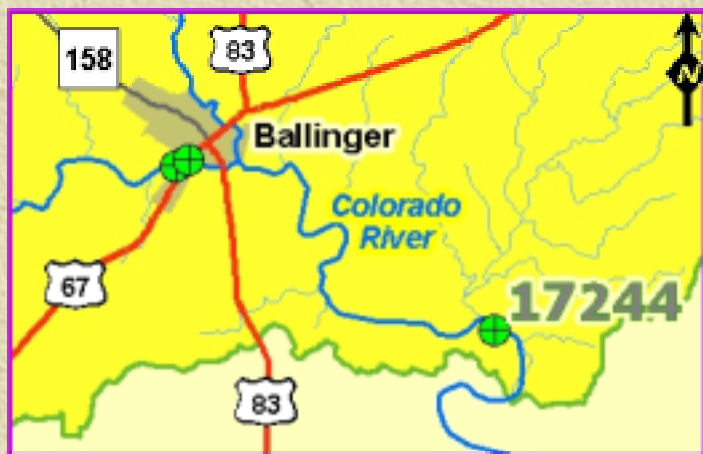


● TDS

— Criteria

— Geometric Mean

Station ID 17244 Colorado River at Blair Ranch

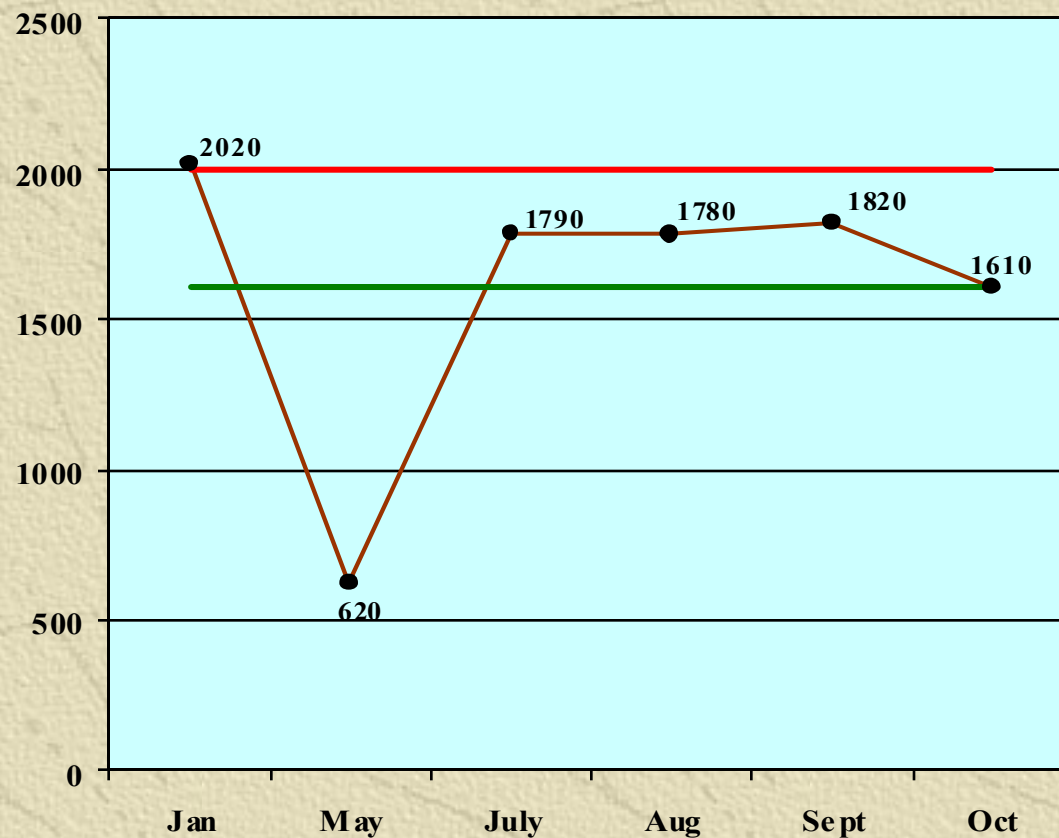
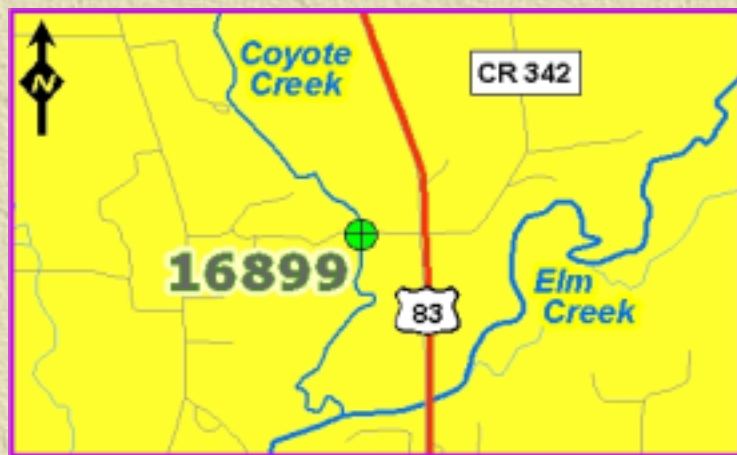


● TDS

— Criteria

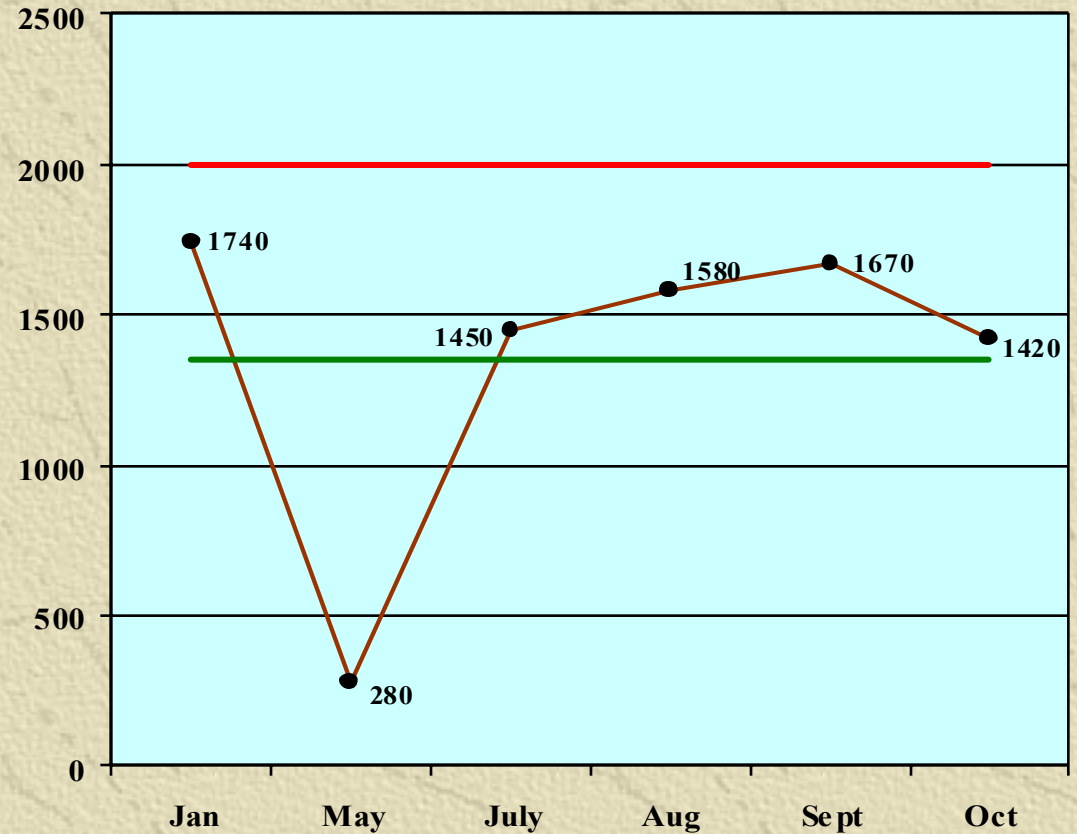
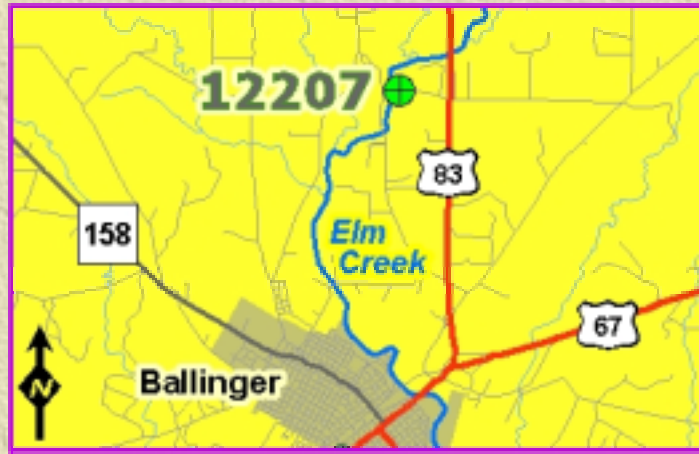
— Geometric Mean

Station ID 16899 Coyote Creek at CR 342



● TDS — Criteria — Geometric Mean

Station ID 12207 Elm Creek at CR 330 four miles north of Ballinger



● TDS — Criteria — Geometric Mean

Segment 2204 - Petronila Creek Overview

- ✚ Placed on the 2000 Clean Water Act (CWA) §303(d) list because chloride, sulfate and total dissolved solids (TDS) exceeded the segment specific criteria of 1500 mg/L, 500 mg/L, and 4000 mg/L.
- ✚ Designated Uses
 - ✚ Aquatic Life
 - ✚ Contact Recreation
 - ✚ General Use
 - ✚ Fish Consumption

Segment 2204 - Petronila Creek

Geography

- Is located within the Nueces-Rio Grande Coastal River Basin, from a point 0.6 miles upstream of private road crossing near the Laureles Ranch in Kleberg County to the confluence of Agua Dulce and Banquete Creeks in Nueces County. It is a freshwater stream that has a total length of 44 miles.
- Oil, gas, and petrochemical production contribute to the economy, which is further diversified by tourism, retailing, seaport activity, and operations.
- In fiscal year '03 the Non-point Source Program (NPS) initiated a contract with the Railroad Commission of Texas (RRC) to eliminate a potential source of salinity in the Petronila Creek drainage basin through the plugging of abandoned, non-compliant oil and gas wells and the re-plugging of improperly plugged wells. A total of 35 wells will be plugged in Nueces, Kleberg, and Jim Wells Counties.



Station ID 13098 – Petronila Creek at US 77

Station ID 13096 – Petronila Creek at FM
665 East of Driscoll

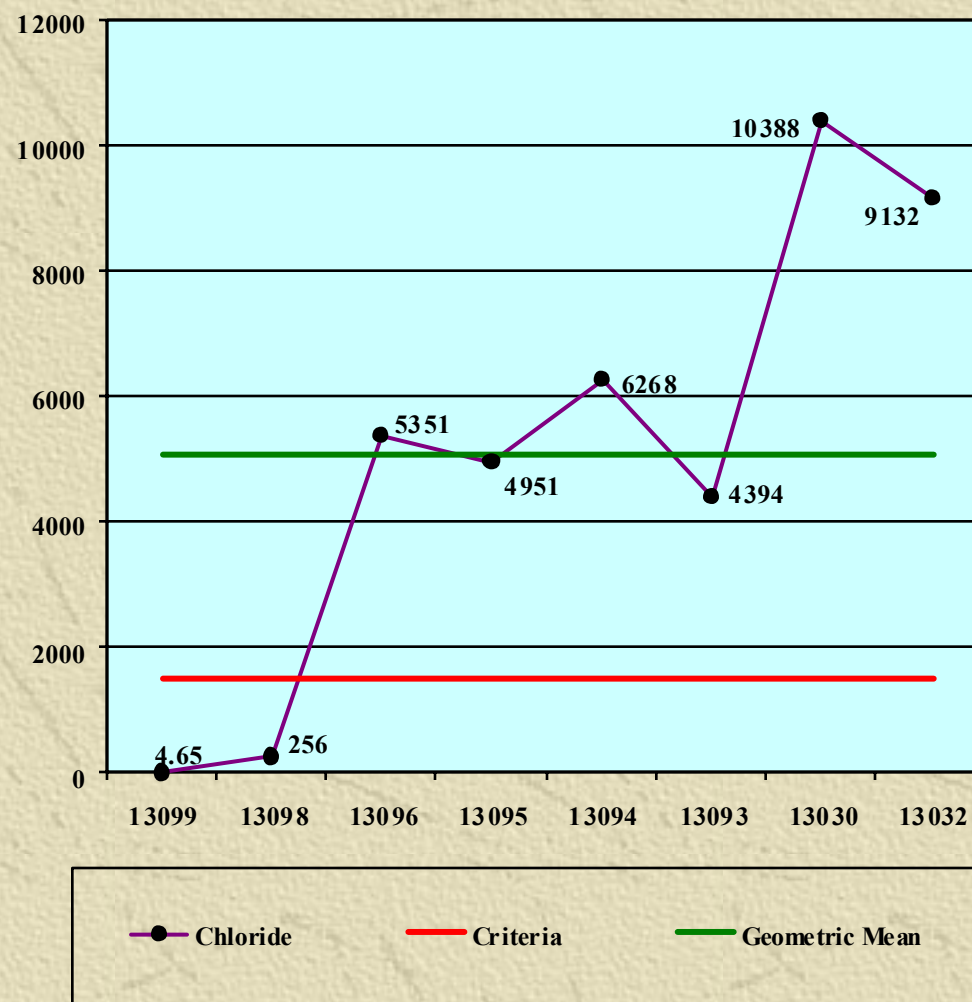
Station ID 13095 – Petronila Creek at Beatty Road

Station ID 13094 – Petronila Creek at FM 892

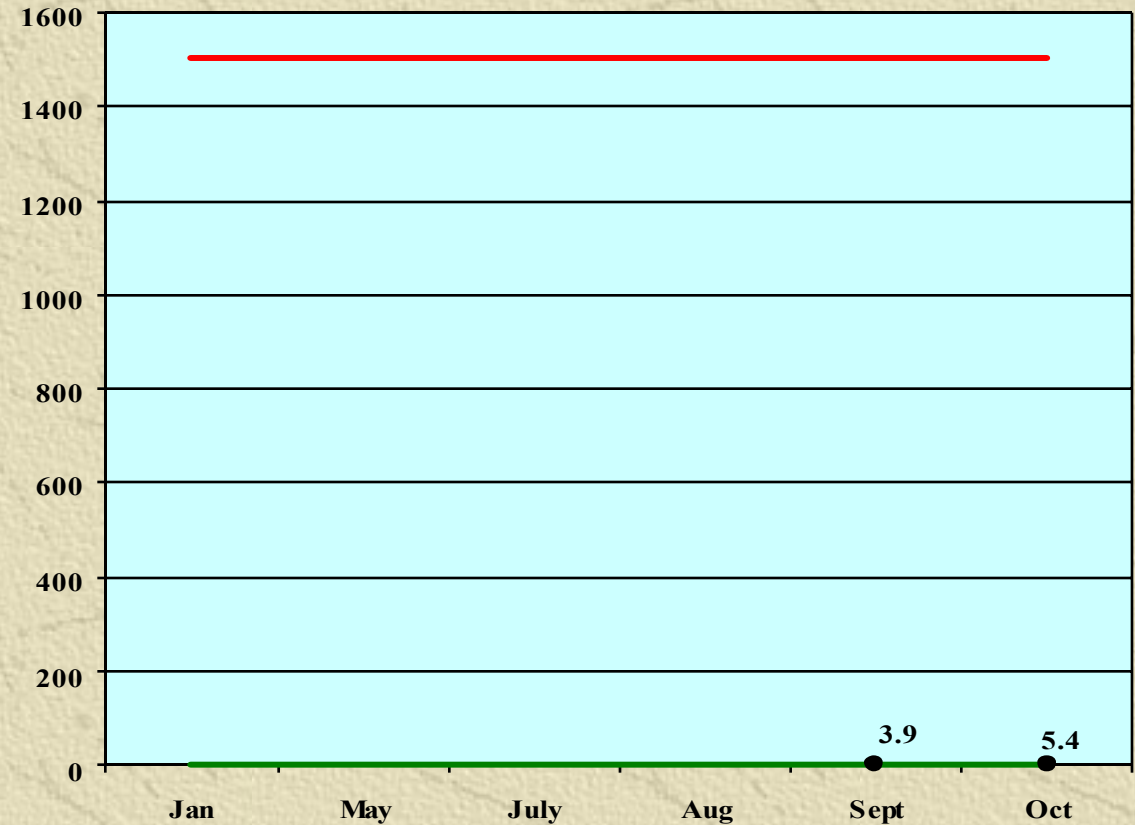
Station ID 13093– Petronila Creek at FM 70
East of Bishop

Station ID 13030– Unnamed tributary to
Petronila Creek at FM 70 near Stanolind-Luby

Station ID 13032 – Unnamed drainage ditch tributary to Petronila Creek at Beatty Rd

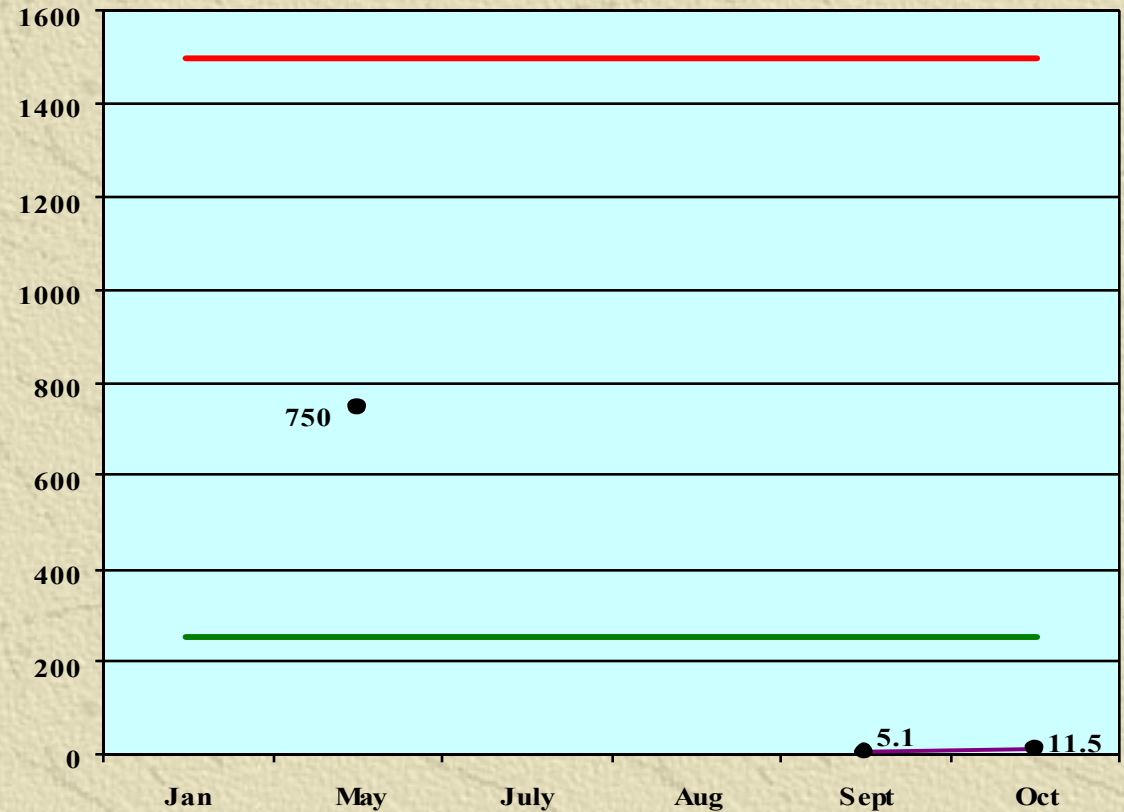


Station ID 13099 Petronila Creek at FM 2826 North of Driscoll



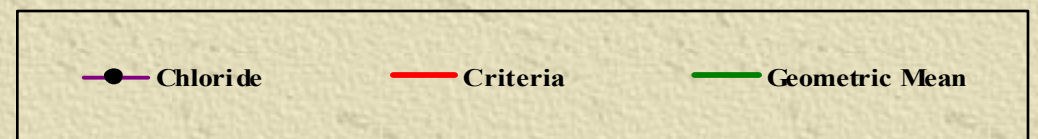
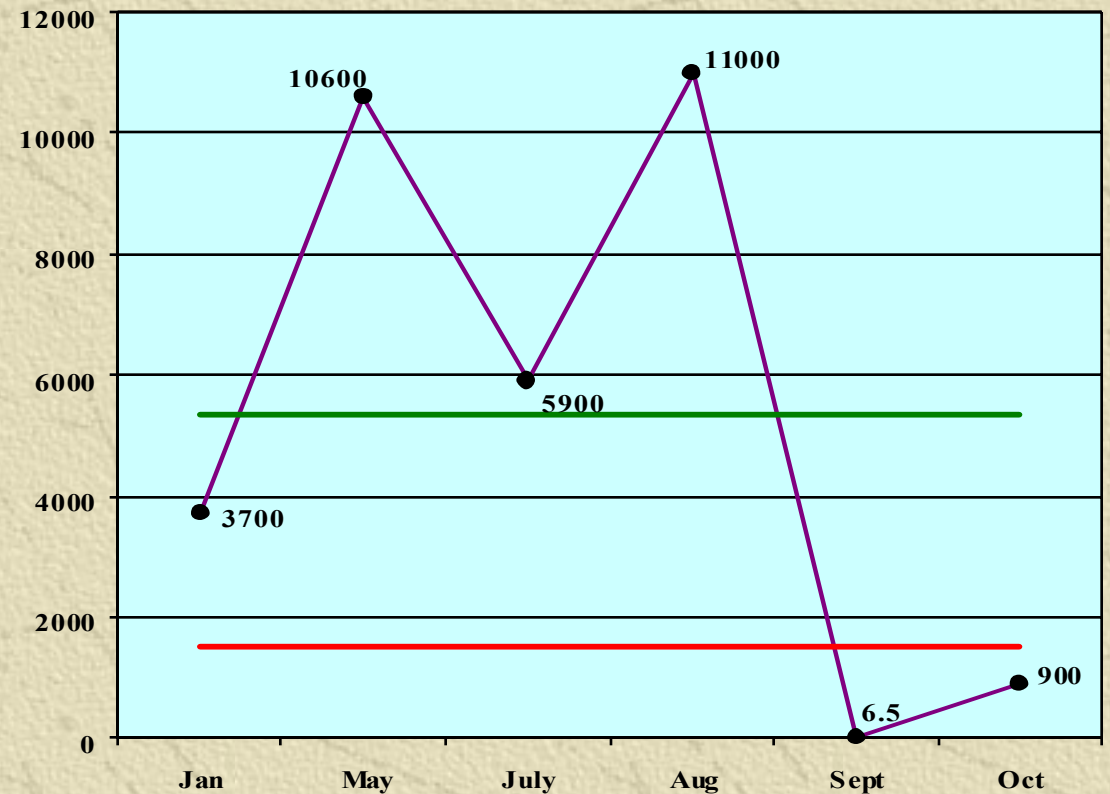
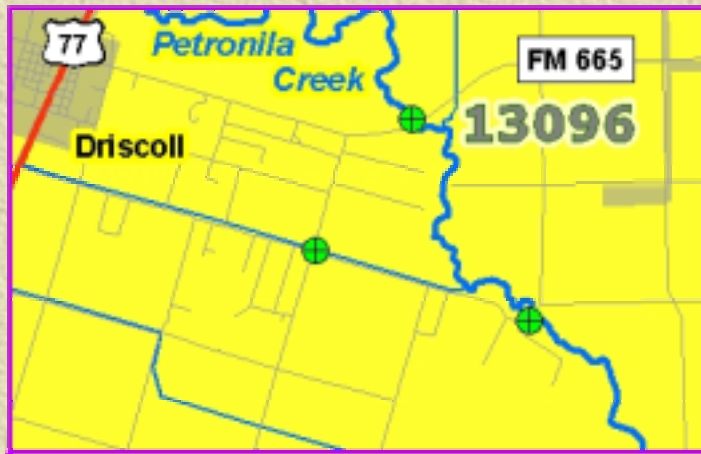
● Chloride — Criteria — Geometric Mean

Station ID 13098 Petronila Creek at US 77

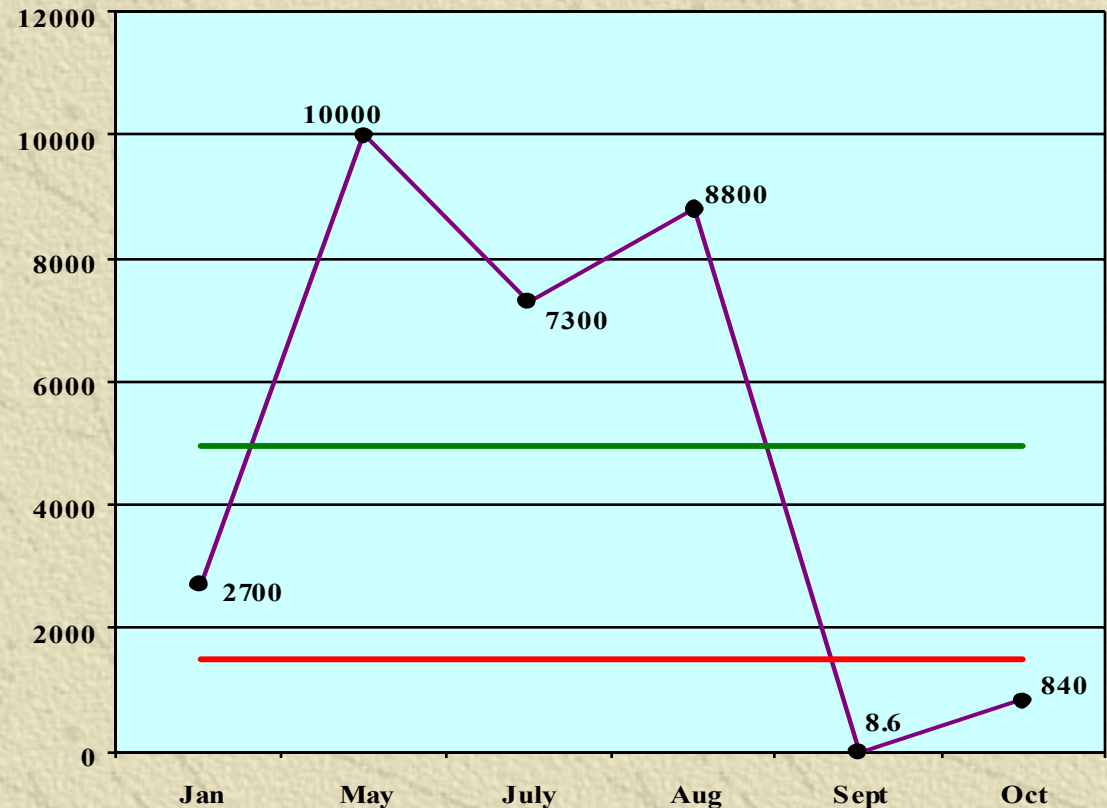
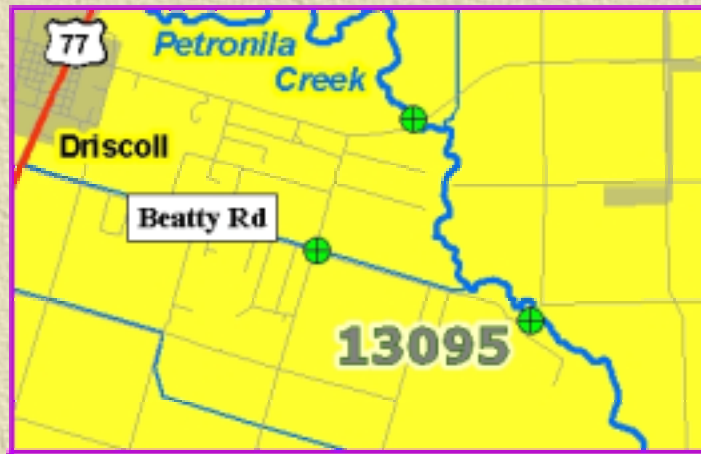


—●— Chloride — Criteria — Geometric Mean

Station ID 13096 Petronila Creek at FM 665 East of Driscoll

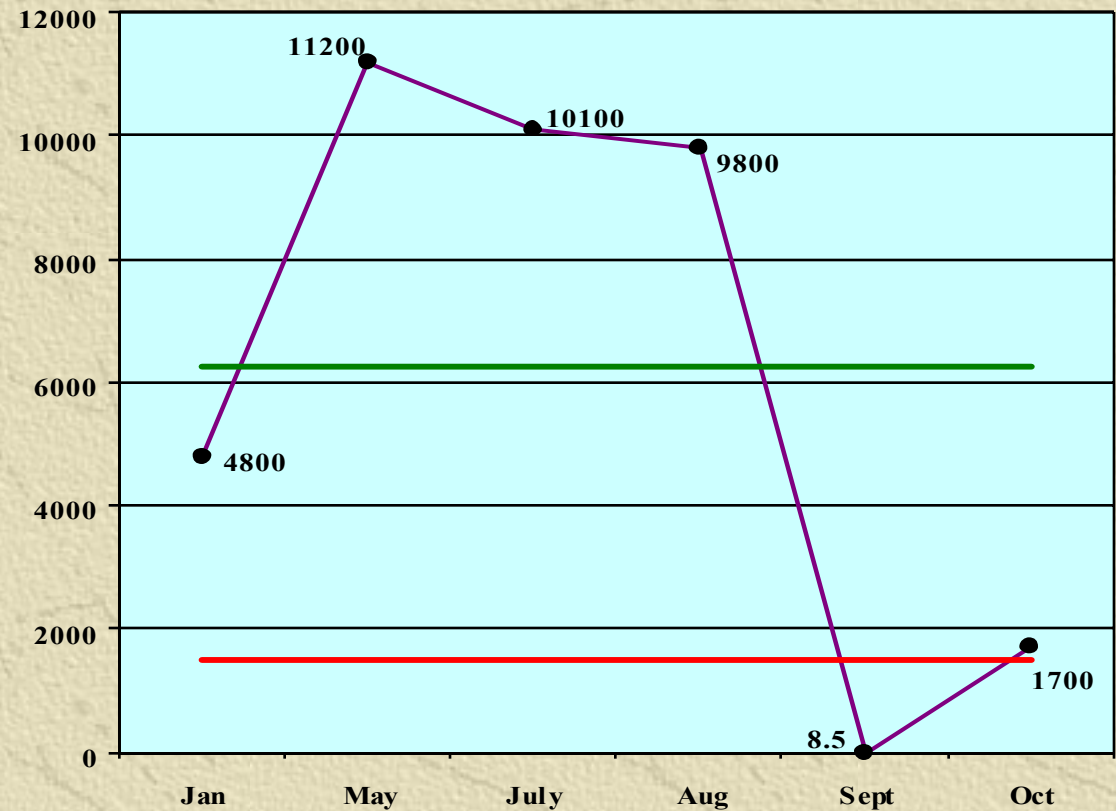


Station ID 13095 Petronila Creek at Beatty Road



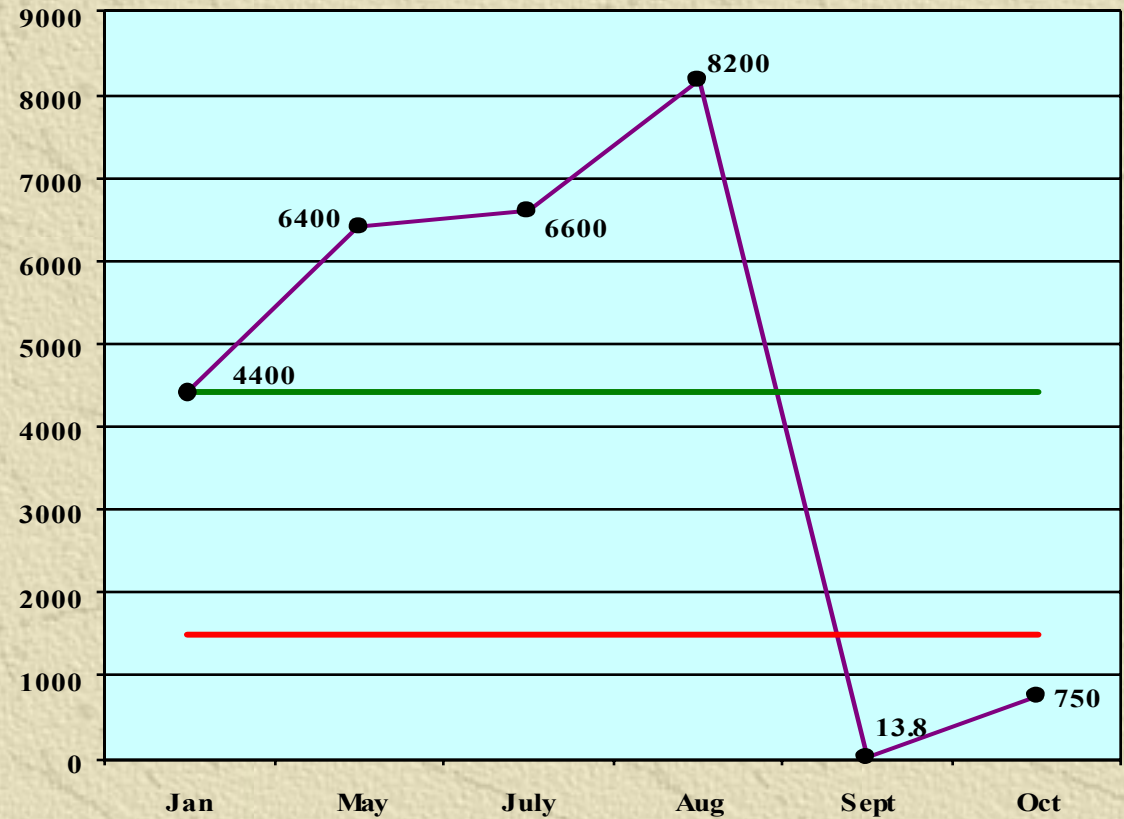
● Chloride — Criteria — Geometric Mean

Station ID 13094 Petronila Creek at FM 892



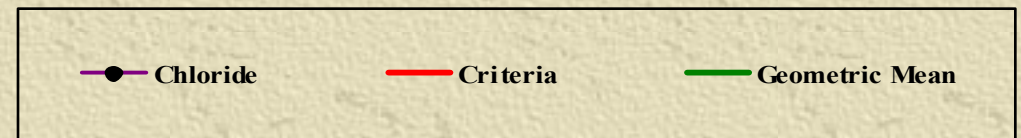
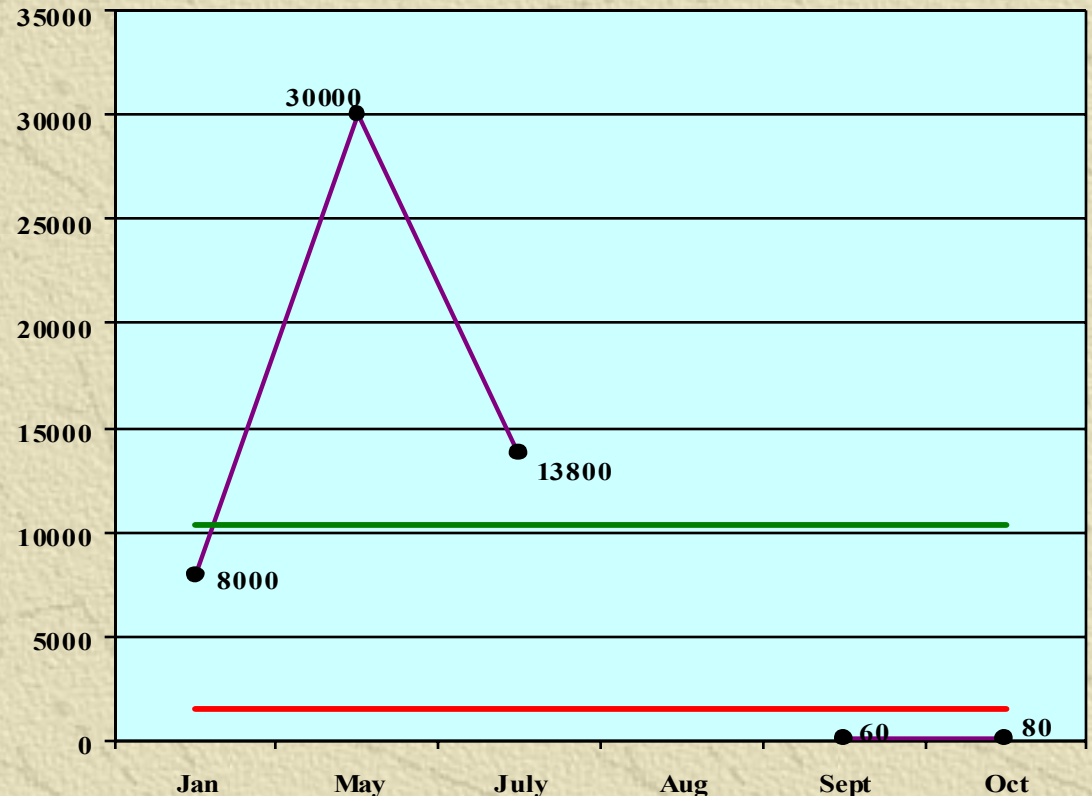
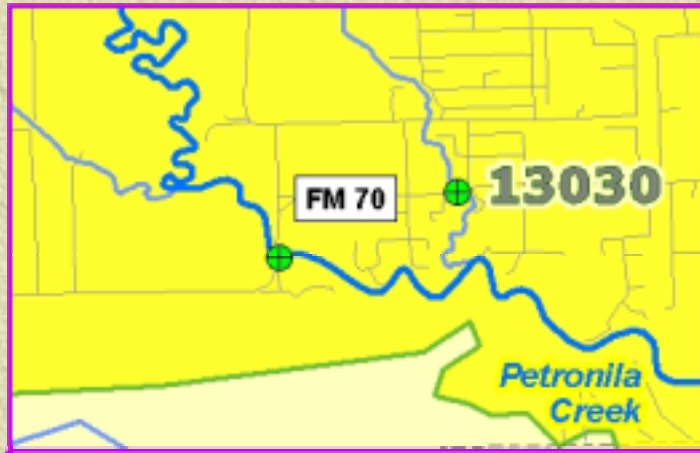
● Chloride — Criteria — Geometric Mean

Station ID 13093 Petronila Creek at FM 70 East of Bishop

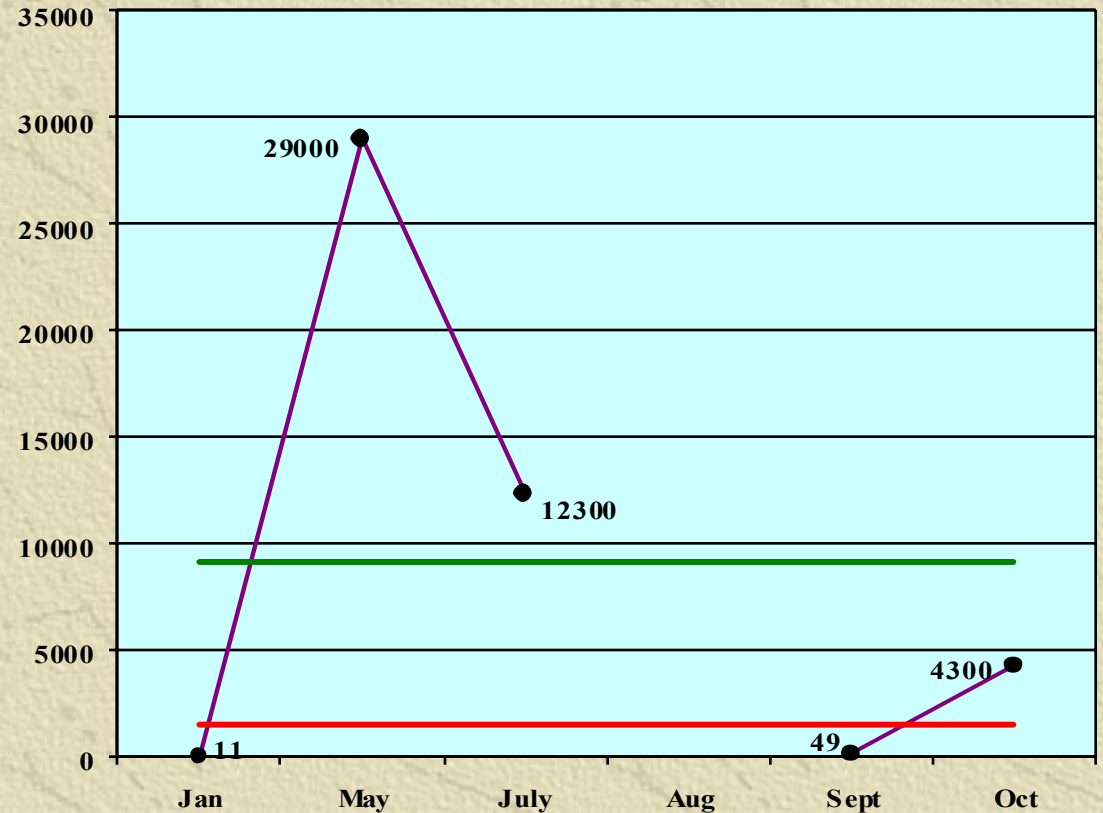


● Chloride — Criteria — Geometric Mean

Station ID 13030 Unnamed tributary to Petronila Creek at FM 70 near Stanolindluby

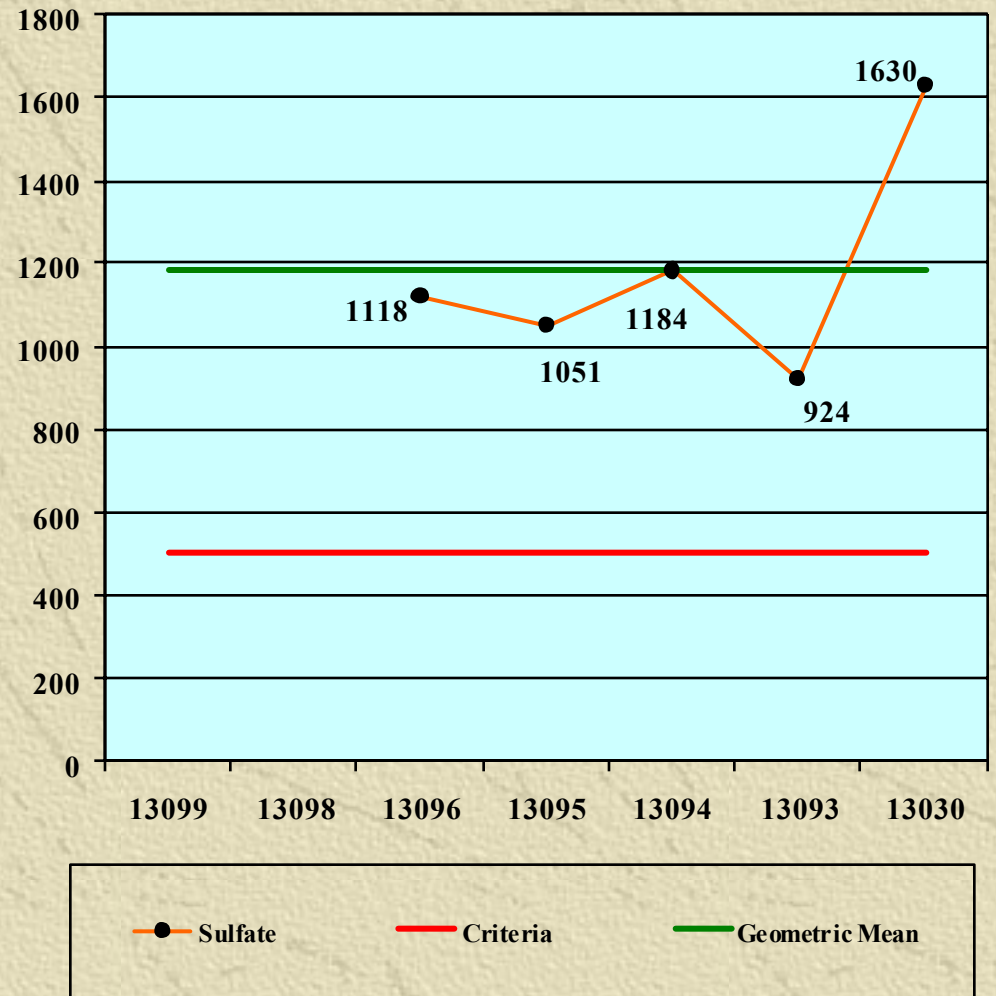


Station ID 13032 Unnamed drainage ditch to tributary to Petronila Creek at Beatty Road

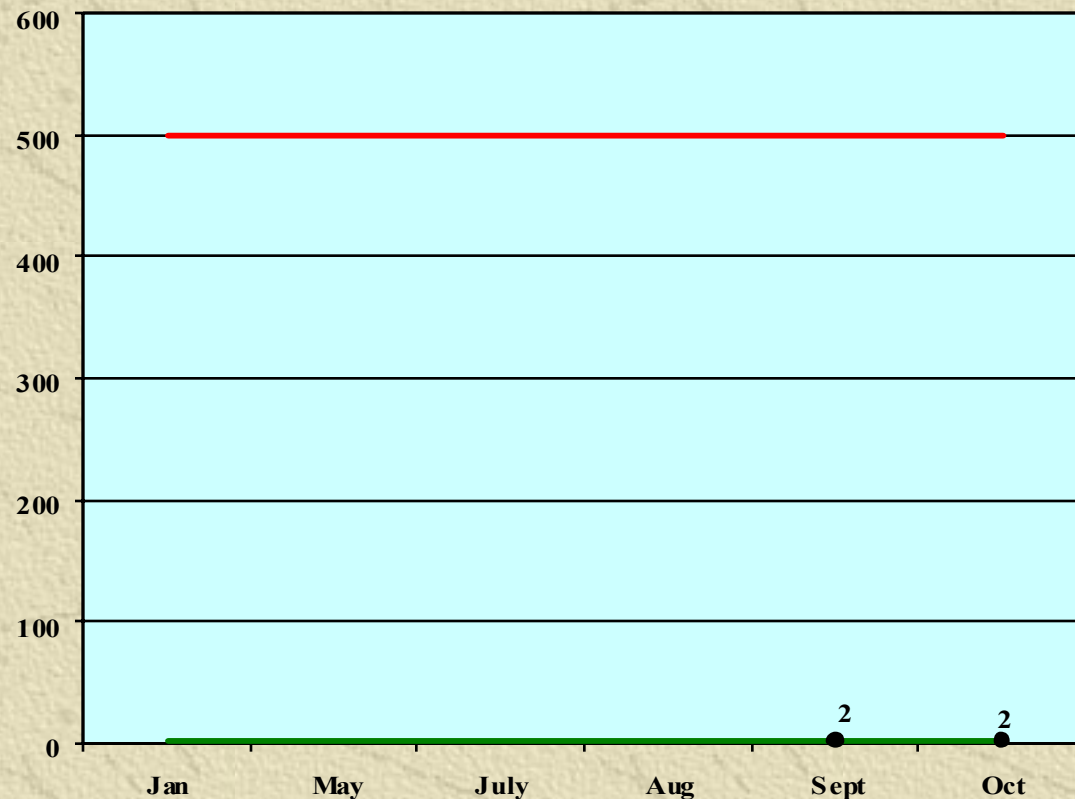
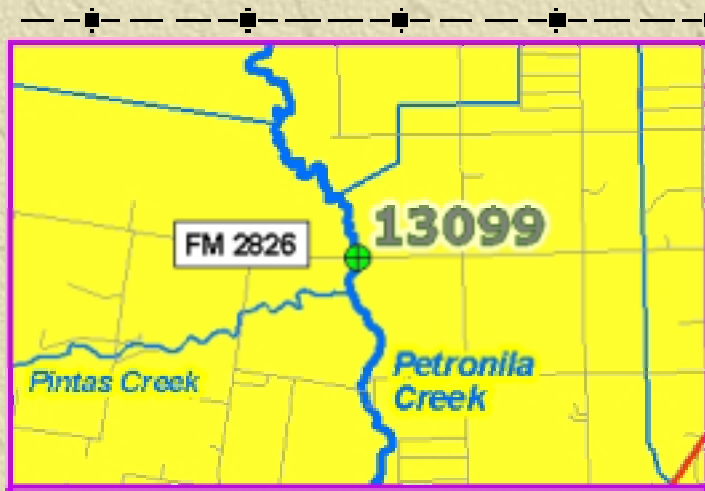


● Chloride — Criteria — Geometric Mean

Station ID 13032 – Unnamed drainage ditch tributary to Petronila Creek at Beatty Rd

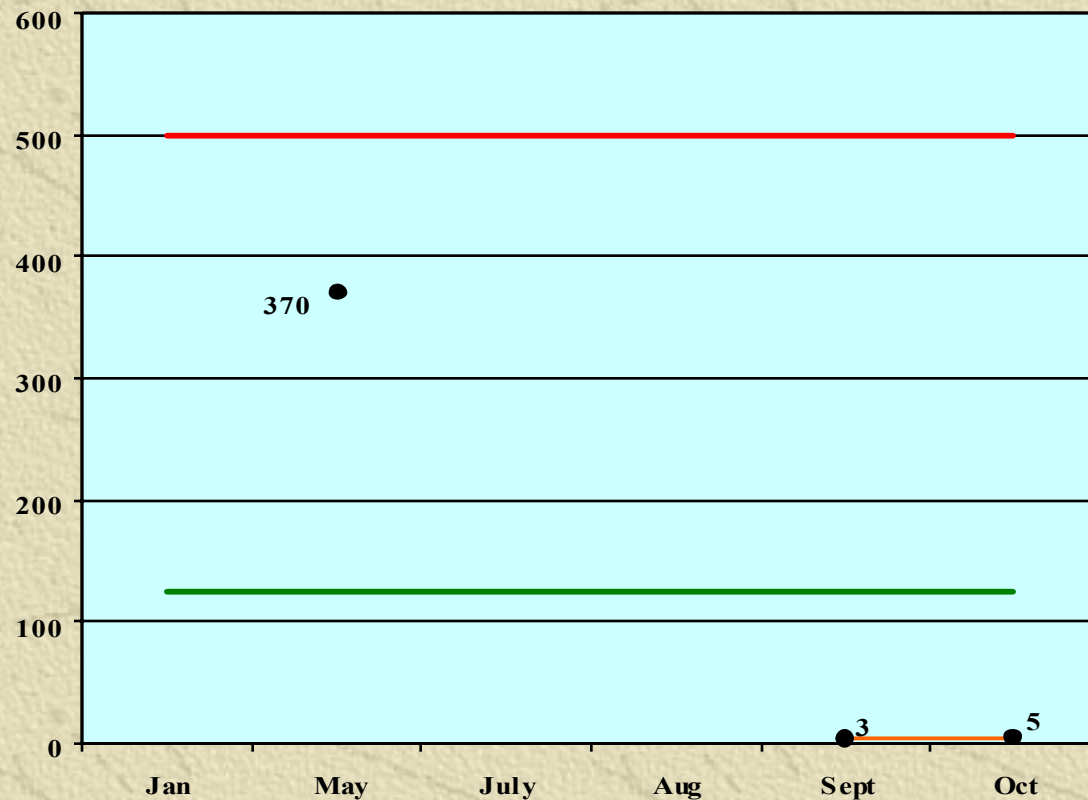


Station ID 13099 Petronila Creek at FM 2826 North of Driscoll



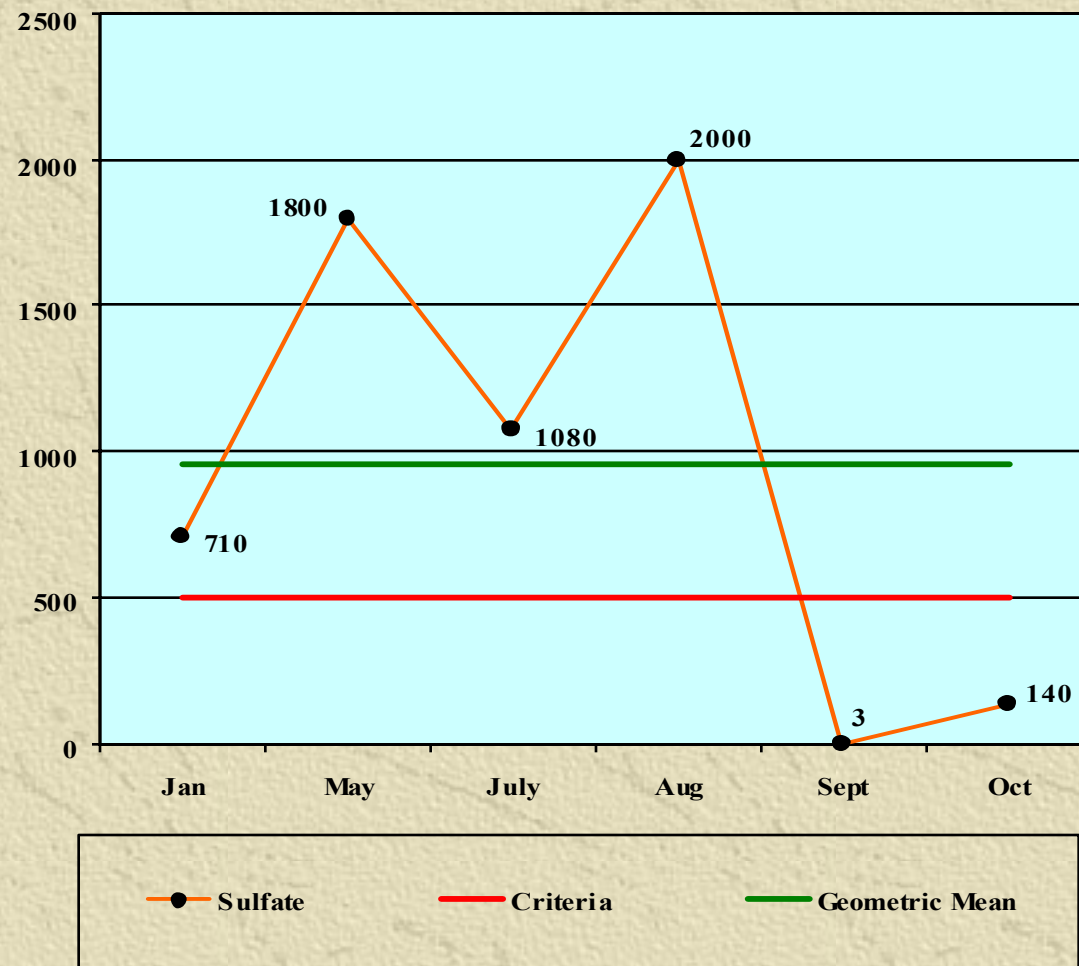
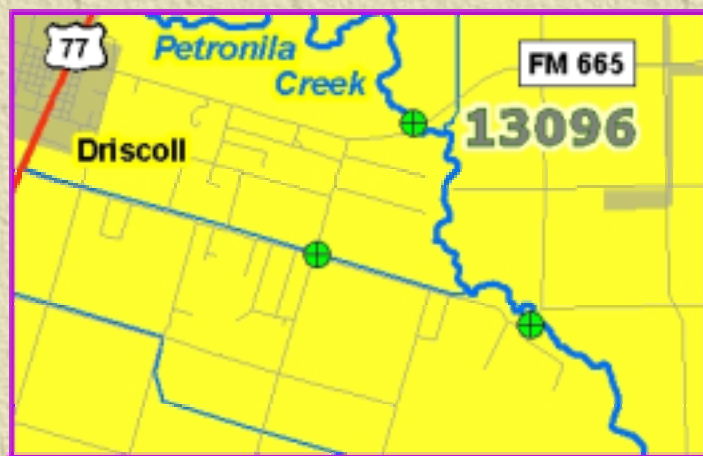
● Sulfate — Criteria — Geometric Mean

Station ID 13098 Petronila Creek at US 77

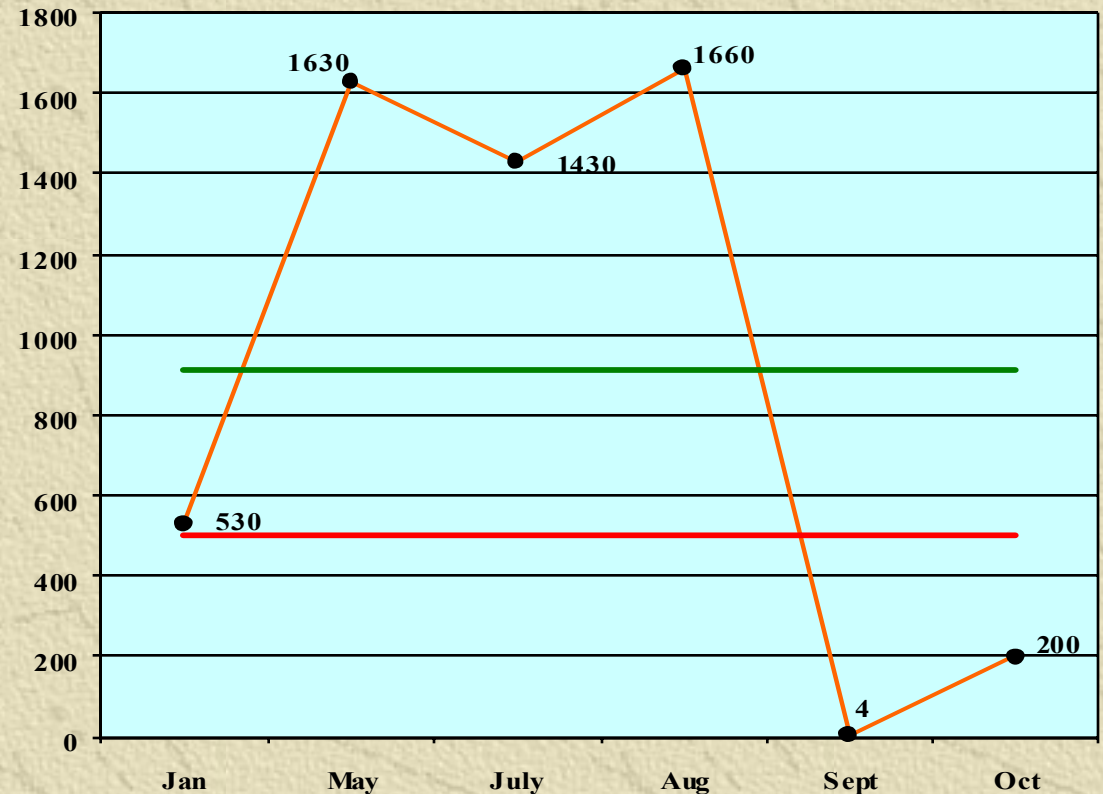


● Sulfate — Criteria — Geometric Mean

Station ID 13096 Petronila Creek at FM 665 East of Driscoll



Station ID 13095 Petronila Creek at Beatty Road

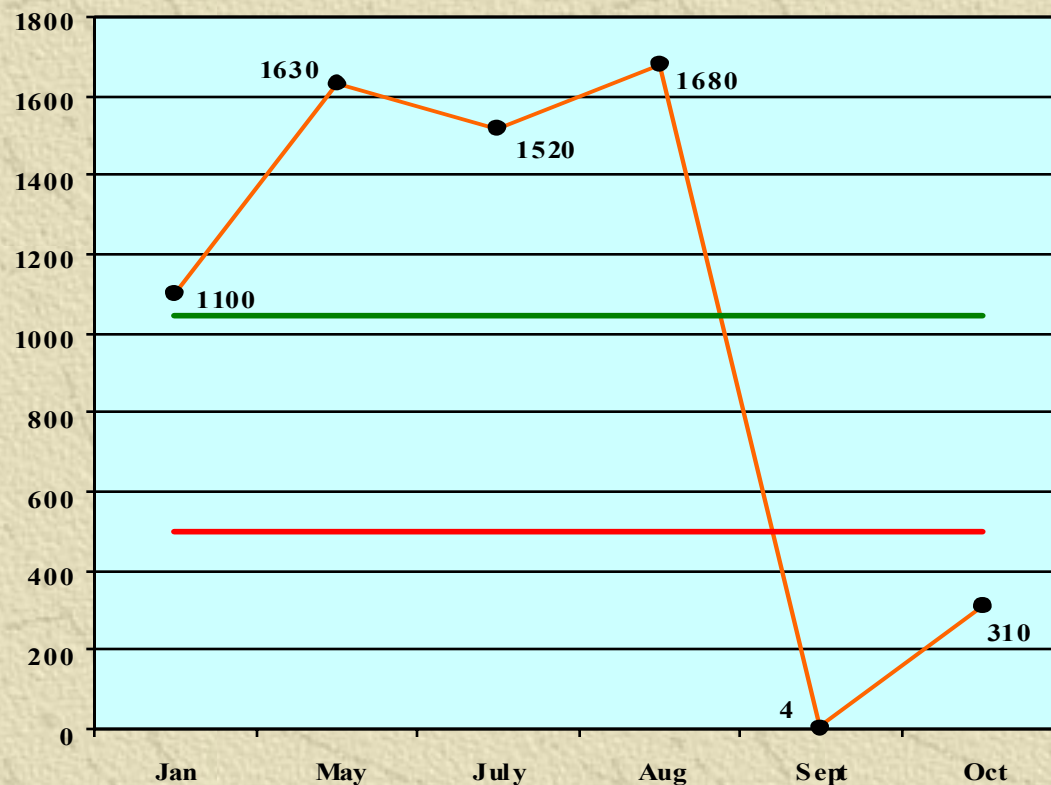


● Sulfate

— Criteria

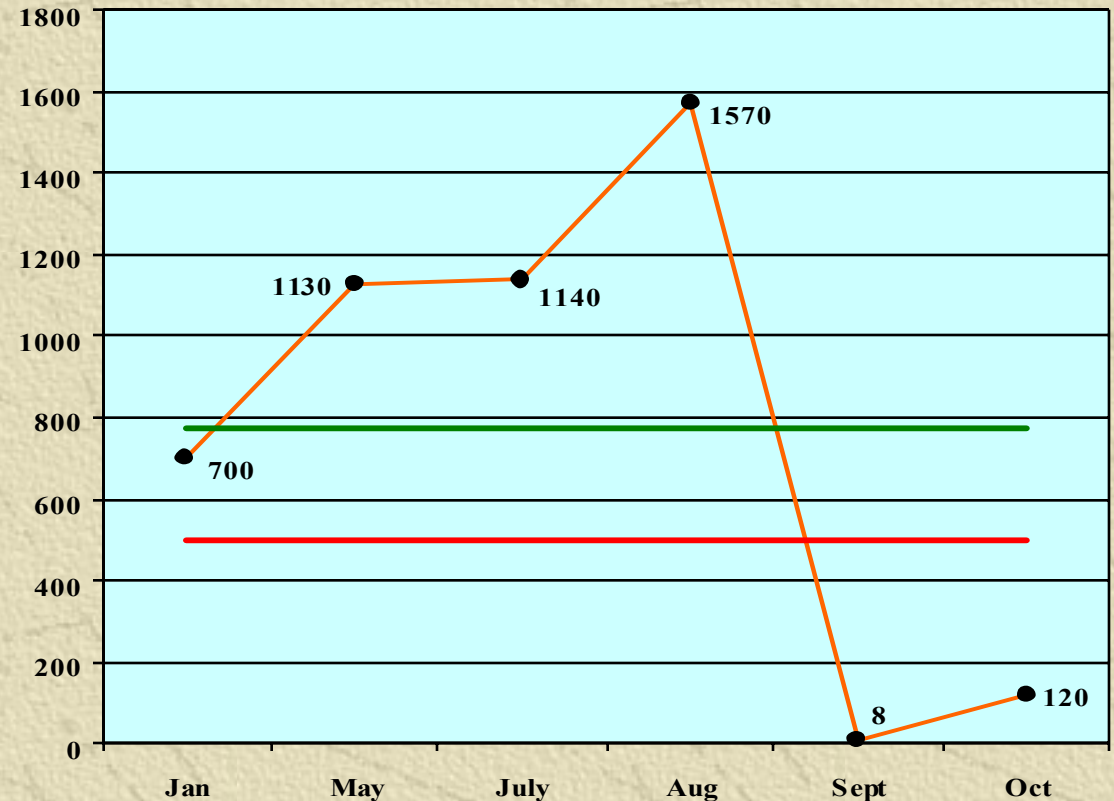
— Geometric Mean

Station ID 13094 Petronila Creek at FM 892



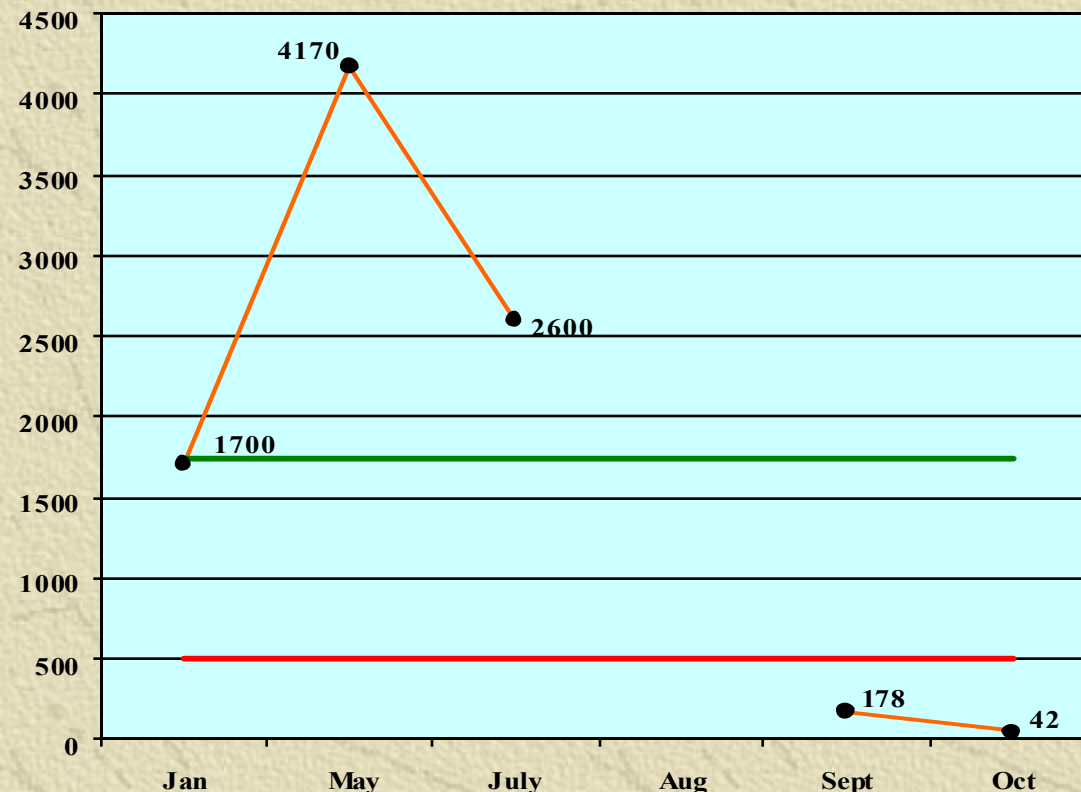
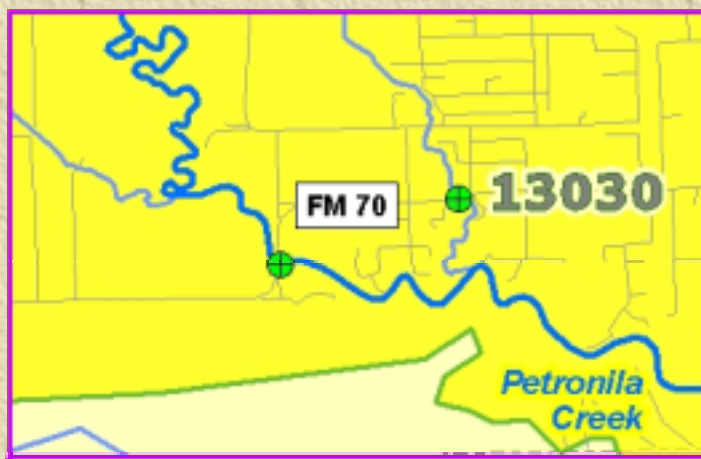
● Sufate — Criteria — Geometric Mean

Station ID 13093 Petronila Creek at FM 70 East of Bishop



● Sulfate — Criteria — Geometric Mean

Station ID 13030 Unnamed tributary to Petronila Creek at FM 70 near Stanolind-Luby

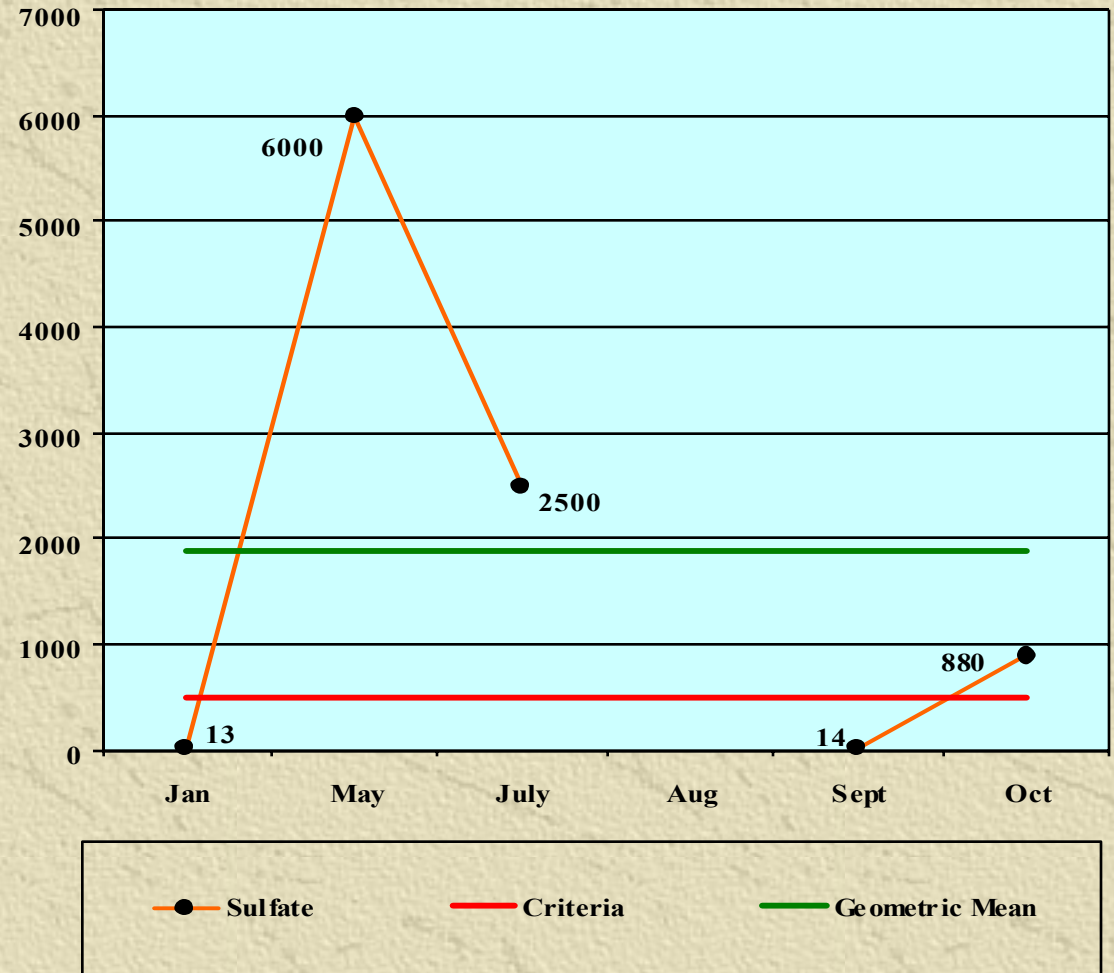


● Sulfate

— Criteria

— Geometric Mean

Station ID 13032 Unnamed drainage ditch to tributary to Petronila Creek at Beatty Road



Station ID 13099 – Petronila Creek at FM

Station ID 13098 – Petronila Creek at US 77

Station ID 13096 – Petronila Creek at FM

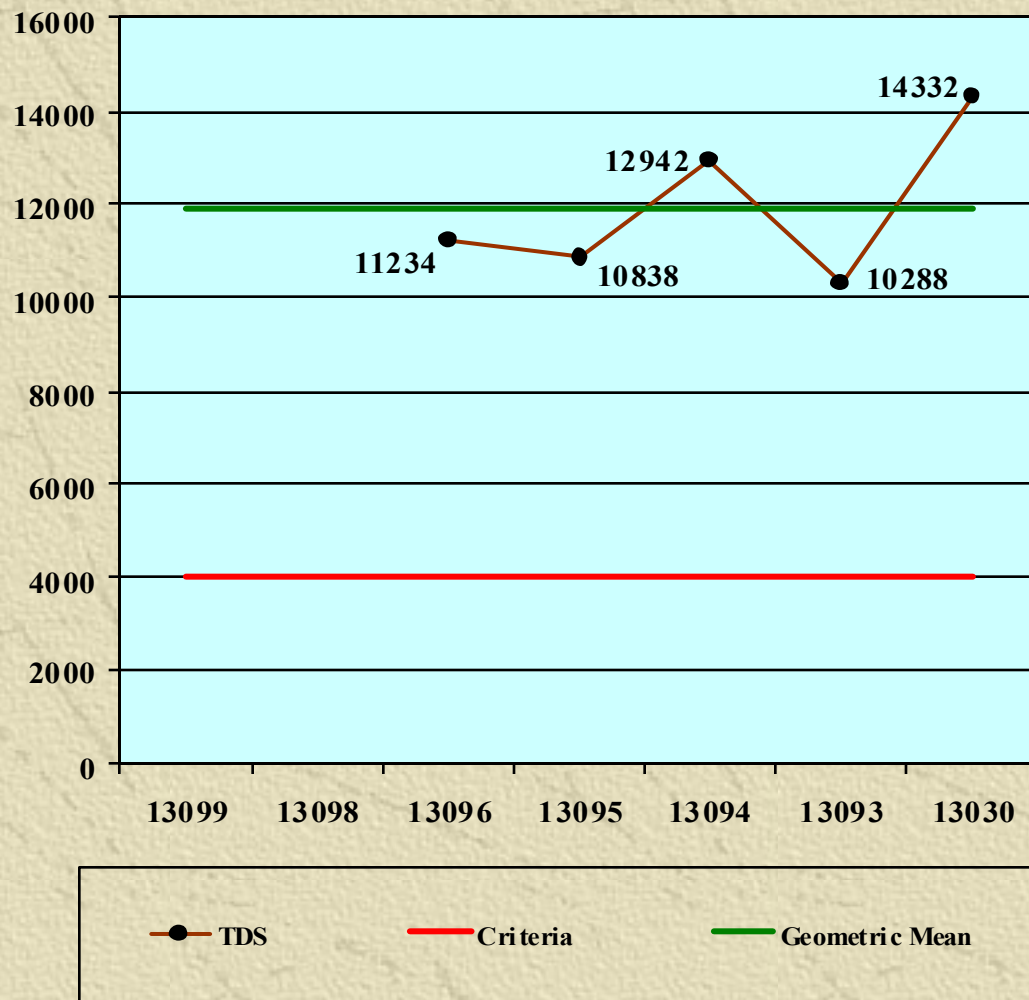
Station ID 13095 – Petronila Creek at Beatty

Station ID 13094 – Petronila Creek at FM

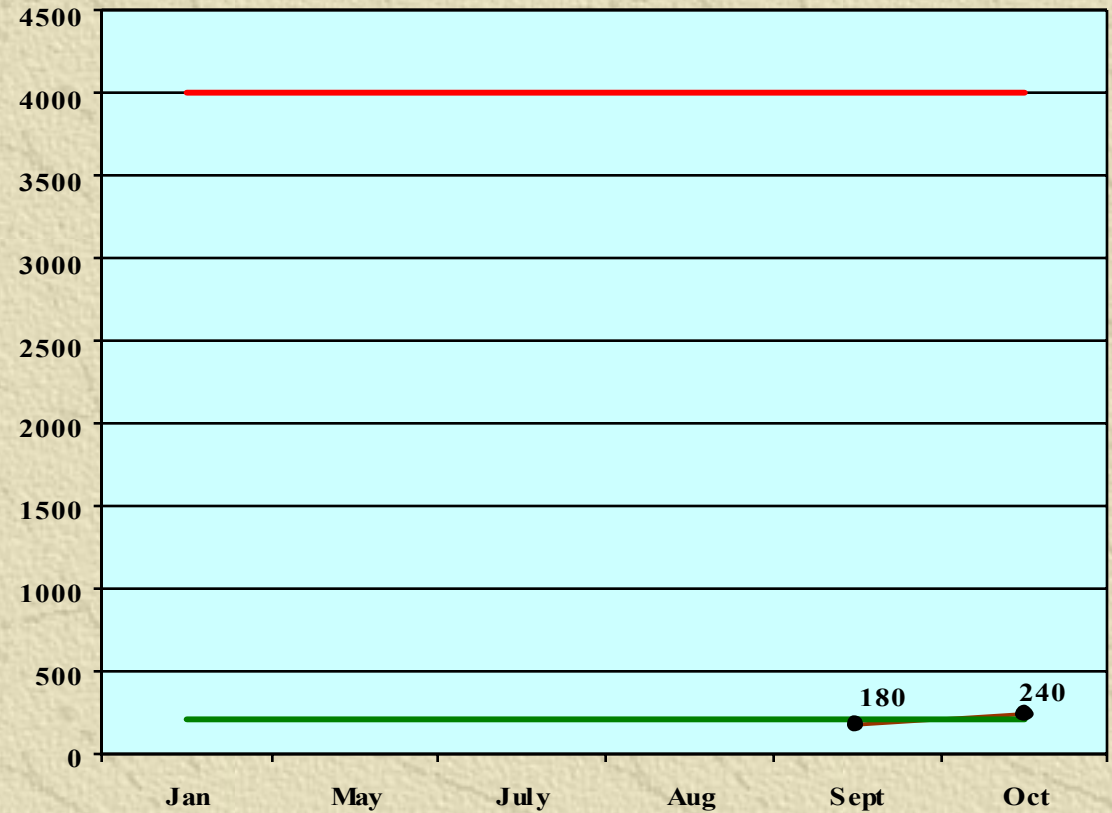
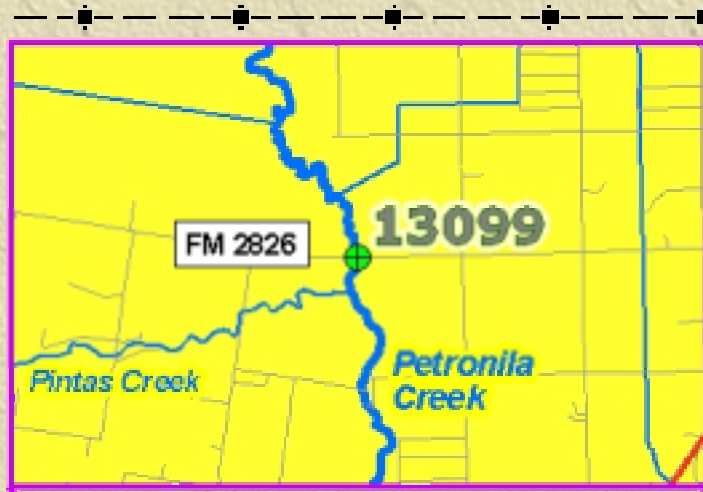
Station ID 13093— Petronila Creek at FM 70

Station ID 13030– Unnamed tributary to

Station ID 13032 – Unnamed drainage ditch



Station ID 13099 Petronila Creek at FM 2826 North of Driscoll

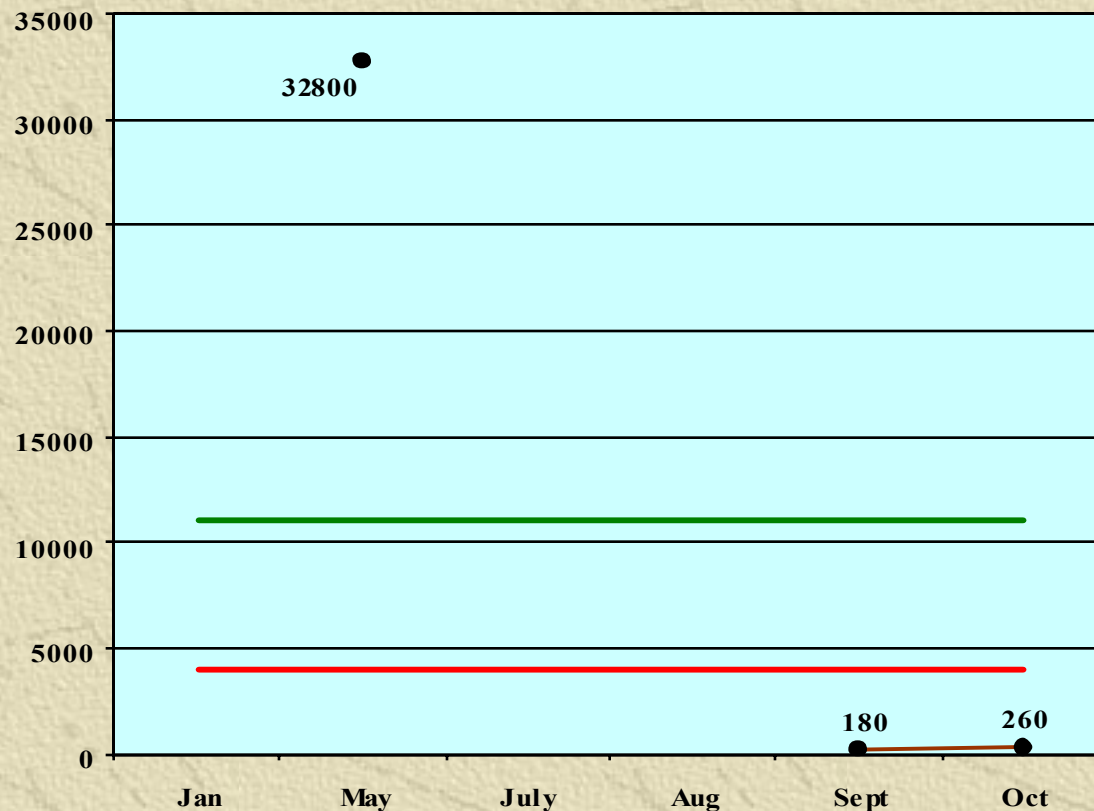


● TDS

— Criteria

— Geometric Mean

Station ID 13098 Petronila Creek at US 77

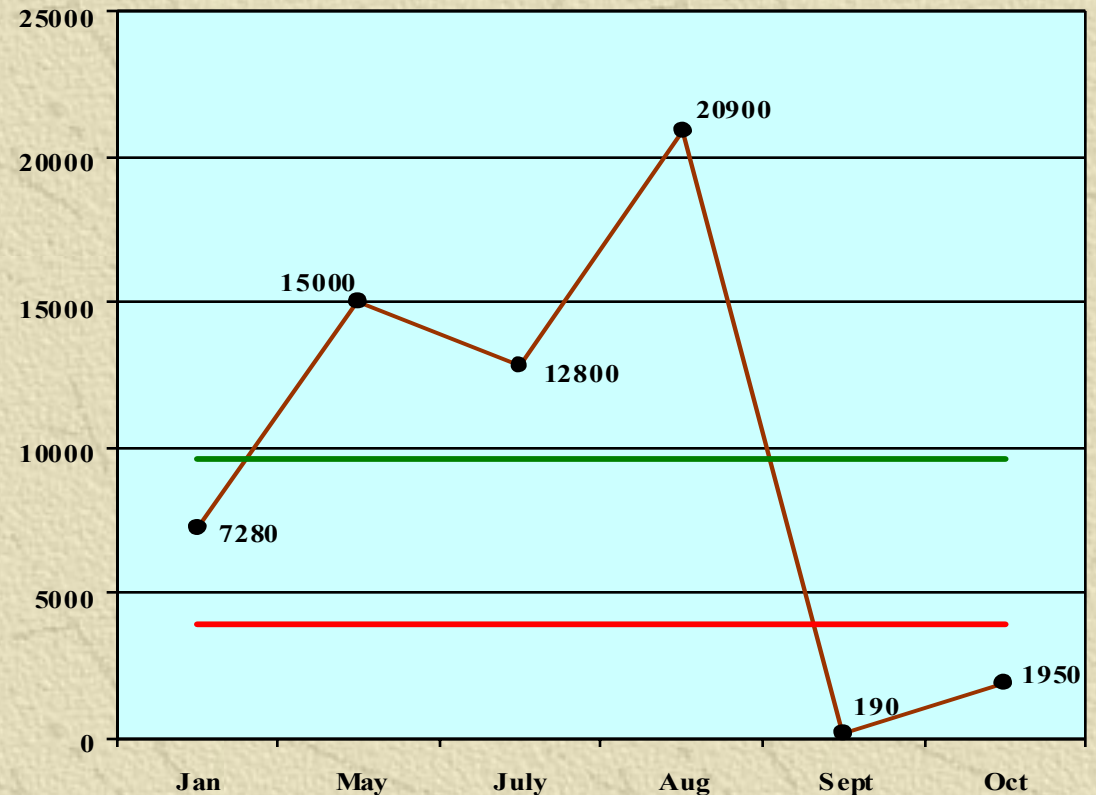
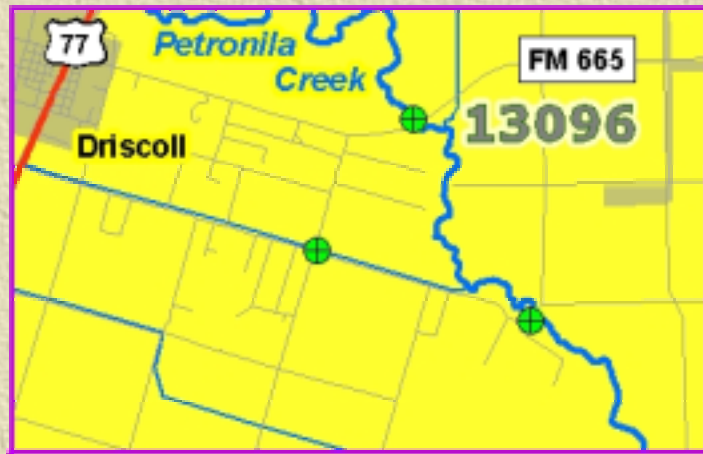


● TDS

— Criteria

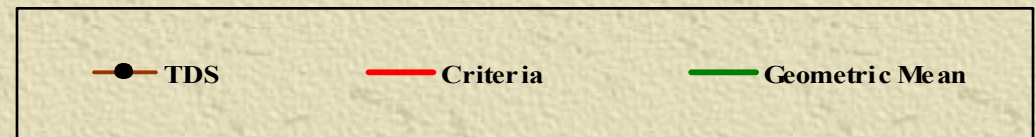
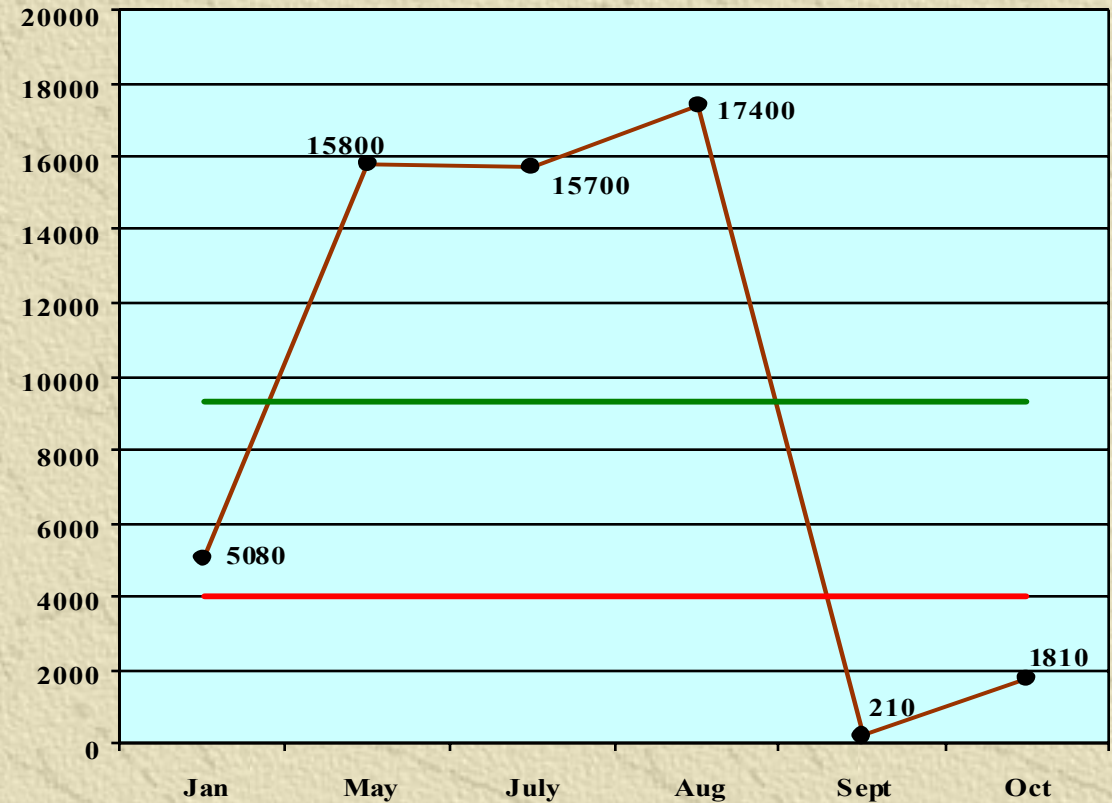
— Geometric Mean

Station ID 13096 Petronila Creek at FM 665 East of Driscoll

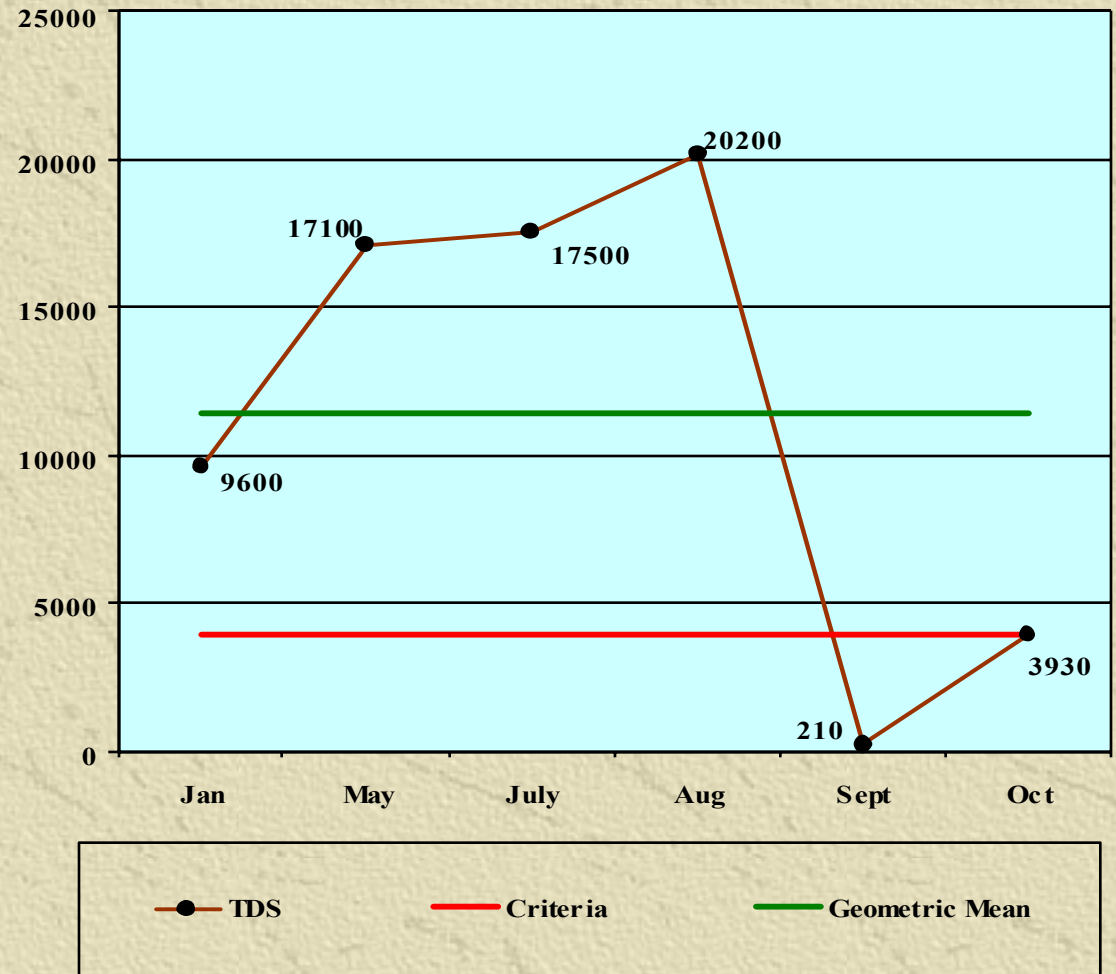


● TDS — Criteria — Geometric Mean

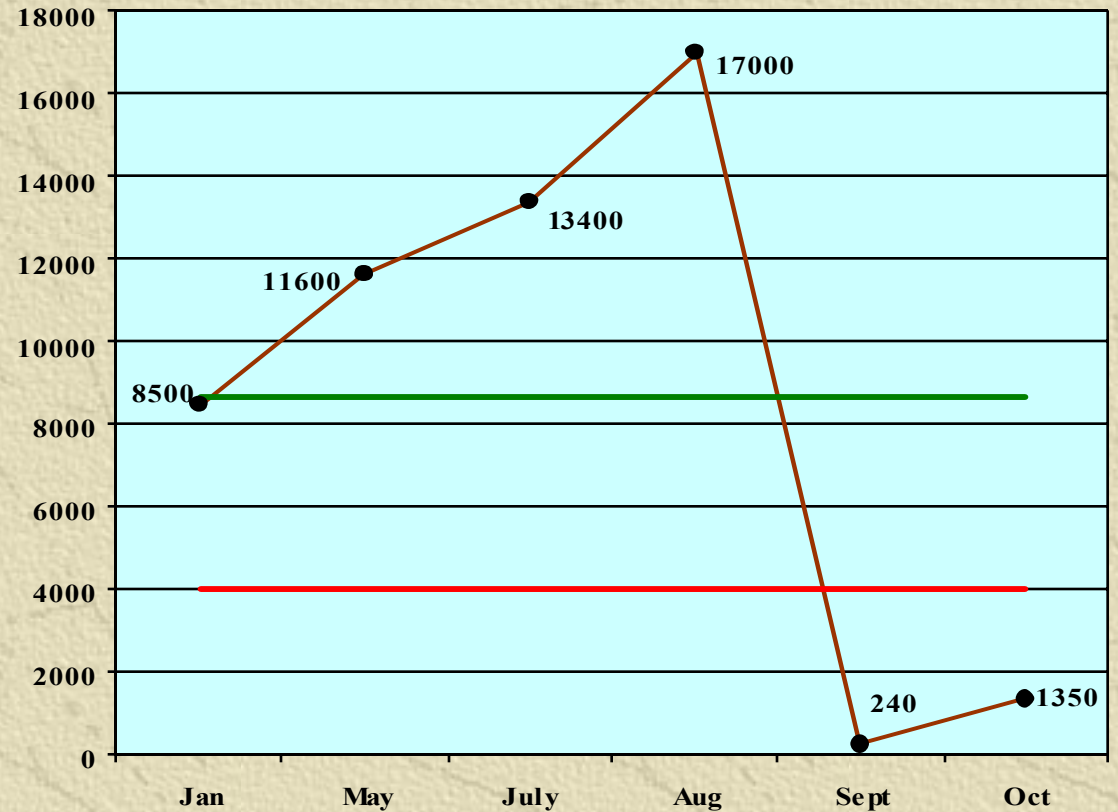
Station ID 13095 Petronila Creek at Beatty Road



Station ID 13094 Petronila Creek at FM 892



Station ID 13093 Petronila Creek at FM 70 East of Bishop

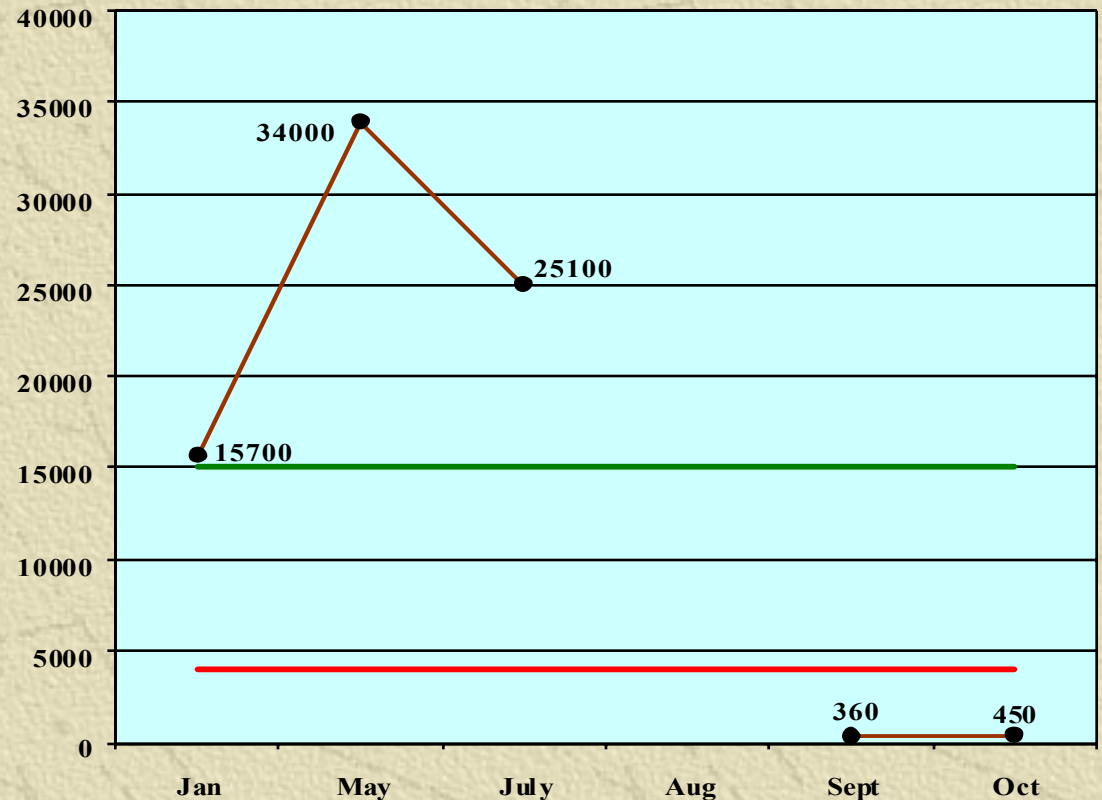
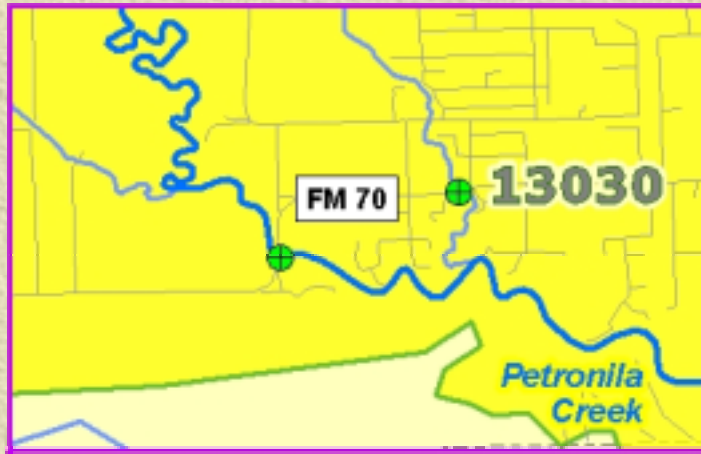


● TDS

— Criteria

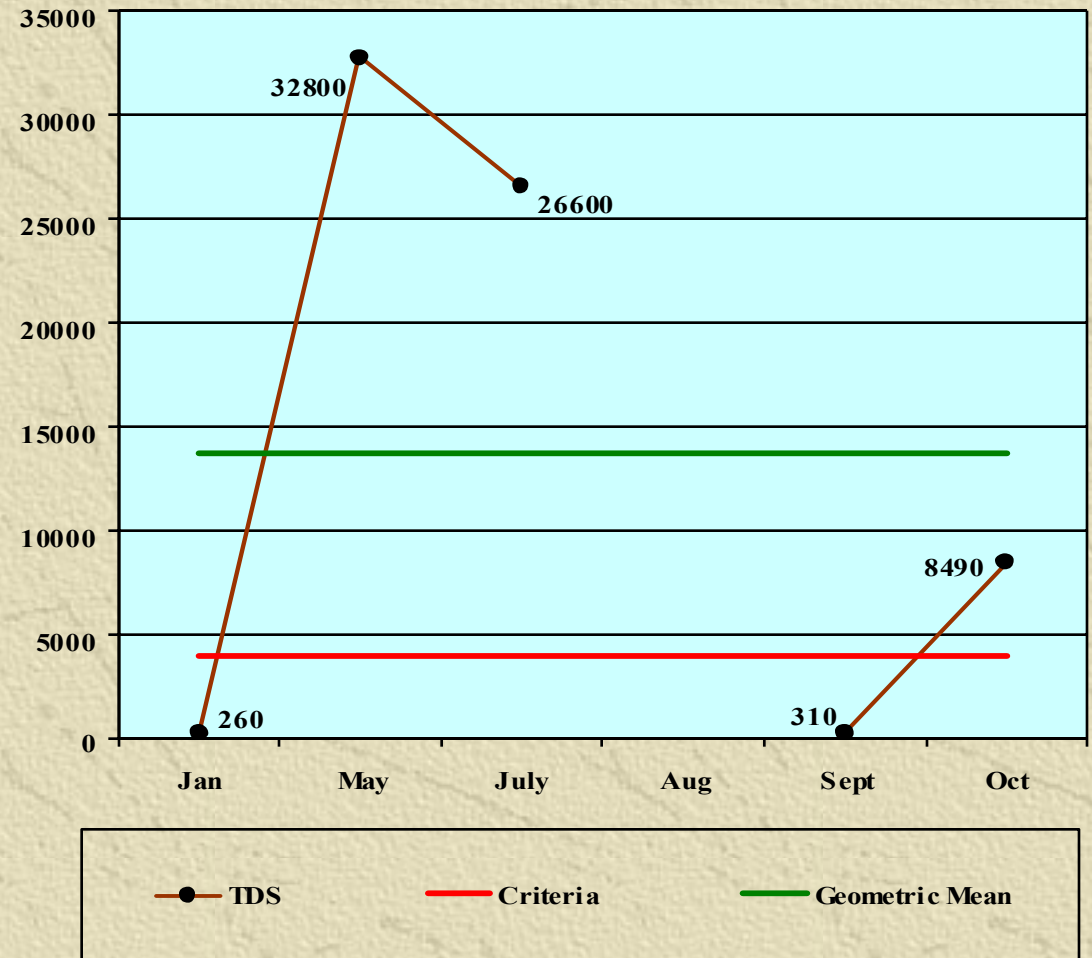
— Geometric Mean

Station ID 13030 Unnamed tributary to Petronila Creek at FM 70 near Stanolind-Luby

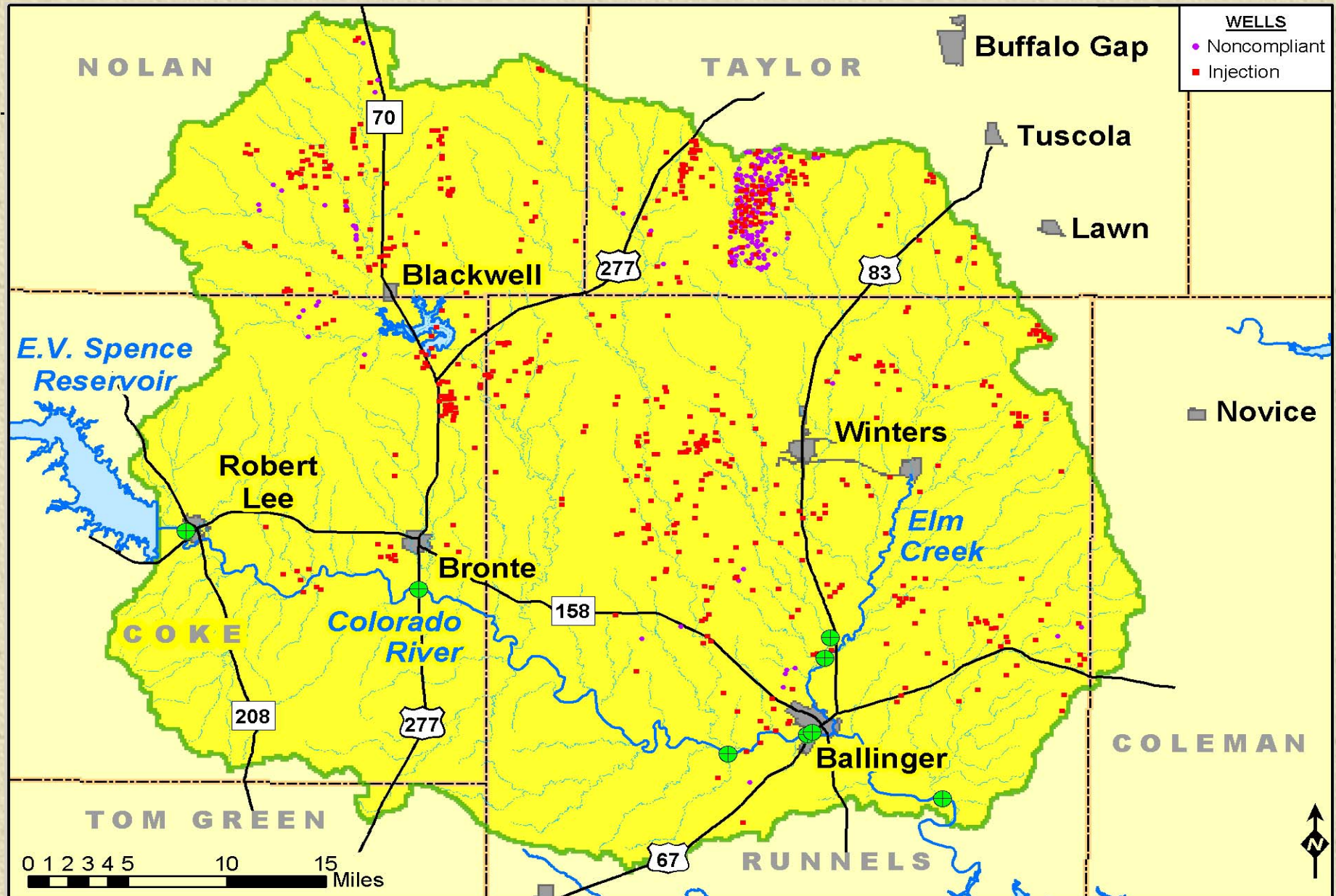


● TDS — Criteria — Geometric Mean

Station ID 13032 Unnamed drainage ditch to tributary to Petronila Creek at Beatty Road



Oil Well Density – Segment 1426 Watershed



Oil Well Density – Segment 2204 Watershed

